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# Turning Points in Modern History

Course Guidebook

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## **Vejas Gabriel Liulevicius, Ph.D.**

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**P**rofessor Vejas Gabriel Liulevicius was born in Chicago, Illinois. He grew up on Chicago's South Side in a Lithuanian American neighborhood and spent some years attending school in Aarhus, Denmark, and Bonn, Germany. He received his B.A. from the University of Chicago. In 1989, he spent the summer in Moscow and Leningrad (today St. Petersburg) in an intensive Russian-language study program. His dissertation research was funded by a German Academic Exchange Service fellowship and took him to Freiburg in Germany's Black Forest region and to Vilnius, Lithuania. He earned his Ph.D. in European History, specializing in modern German history, from the University of Pennsylvania in 1994.

After receiving his doctorate, Professor Liulevicius spent a year as a postdoctoral research fellow at the Hoover Institution on War, Revolution, and Peace at Stanford University. Since 1995, he has been a history professor at the University of Tennessee, Knoxville. He teaches courses on modern German history, Nazi Germany, World War I, 20<sup>th</sup>-century Europe, diplomatic history, and the history of espionage. He has won both of the University of Tennessee's top teaching awards: the Provost's Excellence in Teaching Award in 2003 and the Chancellor's Award for Excellence in Teaching in 2012. In 2005, he was awarded a prestigious National Endowment for the Humanities Research Fellowship. He currently serves as Director of the Center for the Study of War and Society at the University of Tennessee.

Professor Liulevicius's research focuses on German relations with Eastern Europe in the modern period. His other interests include international history and the history of the Baltic region. He has published numerous articles (which have also appeared in French, Italian, and German translations), and his first book, *War Land on the Eastern Front: Culture, National Identity and German Occupation in World War I* also appeared in German

translation in 2002. His second book is a study of German stereotypes of Eastern Europeans and ideas of a special German cultural mission in the East over the past two centuries, entitled *The German Myth of the East, 1800 to the Present*.

Professor Liulevicius has recorded four other Great Courses: *Espionage and Covert Operations: A Global History*; *War, Peace, and Power: Diplomatic History of Europe, 1500-2000*; *World War I: The “Great War”*; and *Utopia and Terror in the 20<sup>th</sup> Century*.

Professor Liulevicius lives in Knoxville, Tennessee, with his wife, Kathleen, and their children, Paul and Helen. ■

# Table of Contents

---

## INTRODUCTION

Professor Biography .....	i
Course Scope .....	1

## LECTURE GUIDES

### LECTURE 1

1433—The Great Voyages of Admiral Zheng He .....	4
--	---

### LECTURE 2

1453—The Fall of Constantinople .....	11
---------------------------------------	----

### LECTURE 3

1455—Gutenberg's Print Revolution .....	17
---	----

### LECTURE 4

1492—The Columbian Exchange .....	24
-----------------------------------	----

### LECTURE 5

1600—The British East India Company .....	31
---	----

### LECTURE 6

1648—The Treaty of Westphalia .....	38
-------------------------------------	----

### LECTURE 7

1676—Van Leeuwenhoek's Microscope .....	46
---	----

### LECTURE 8

1751—Diderot's Enlightenment Encyclopedia .....	53
---	----

### LECTURE 9

1787—The American Experiment .....	60
------------------------------------	----

### LECTURE 10

1789—The French Revolution .....	67
----------------------------------	----

## Table of Contents

---

### LECTURE 11

1838—The British Slavery Abolition Act .....	74
--	----

### LECTURE 12

1839—The Opium War in China .....	81
-----------------------------------	----

### LECTURE 13

1859—Darwin and the <i>Origin of Species</i> .....	88
--	----

### LECTURE 14

1869—Binding Continents .....	95
-------------------------------	----

### LECTURE 15

1893—First Women Voters in New Zealand .....	102
--	-----

### LECTURE 16

1896—The Invention of Motion Pictures .....	109
---	-----

### LECTURE 17

1903—Kitty Hawk and Powered Flight .....	116
--	-----

### LECTURE 18

1904—The Russo-Japanese War .....	123
-----------------------------------	-----

### LECTURE 19

1928—The Discovery of Penicillin .....	130
--	-----

### LECTURE 20

1942—The Dawn of the Atom .....	137
---------------------------------	-----

### LECTURE 21

1969—Walking on the Moon .....	144
--------------------------------	-----

### LECTURE 22

1972—China Enters the World Balance .....	151
---	-----

### LECTURE 23

1989—The Fall of the Berlin Wall .....	159
--	-----

# Table of Contents

---

## LECTURE 24

2004—The Rise of Social Media .....	166
-------------------------------------	-----

## SUPPLEMENTAL MATERIAL

Timeline .....	174
Bibliography .....	179





# Turning Points in Modern History

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## Scope:

Since 1400, crucial turning points have jolted the world's modern history. These critical moments, and the waves of change they unleash, have defined what makes modern history different from all that preceded it. Our course tracks these crucial turning points in the areas of politics, scientific development, social transformation, technological innovation, startling intellectual challenges, economic advance, and military triumph and disaster.

All these transformative moments have one basic thing in common: They sparked profound changes in how humans viewed their world, what humans might be capable of, and even the essence of human nature. In this course, we examine the deepest human impact and change in worldview precipitated by these key historical turning points. Whether covering a turning point in technological change (such as the invention of the printing press or the atomic bomb), political history (the establishment of nation-states as a default mode of world politics), social transformation (the abolition of slavery or the recognition of women's right to vote), and many, many more—in each case, we focus on the impact of the turning point on the worldview and general outlook of contemporaries, what they hoped or feared would be the effects.

This course begins by confronting a striking, inescapable contrast. In premodern societies, tradition and the time-hallowed ways of the ancestors held great authority, while innovations were seen as suspect, as deviations from how things had always been done. Traditional societies did not welcome that which was new and revolutionary but, instead, longed for the restoration of a mythic golden age. By contrast, in modern societies, newness is celebrated and hope is placed in progress. Modern people often look for the “new and improved” and eagerly anticipate the “next big thing.” The difference could not be more stark. How did this fundamental shift in outlook take place, historically?

This course shows how the decisive turning points of the last 500 years have, in fact, combined to create the world as it is today, shaping the condition of modernity as we know it and live it now. The elusive concept of modernity is often described as a new way of life marked by the growth of technology, the autonomy of the individual, recourse to experimentation and science over the dictates of tradition, new concepts of popular sovereignty and equality, and new interconnectedness on an increasingly global scale. To get at the evolution of this modernity, in each of our lectures, we investigate changing concepts of authority, what is seen as legitimate and true.

As we zero in on the 24 most important turning points of modern history, our course presents an astonishing and memorable cast of characters: from a Chinese eunuch admiral of the Ming dynasty sailing the Indian Ocean to an Italian physicist seeking to create the first sustained manmade atomic reaction, from a New Zealand crusader for women's votes to a Dutch scientist laboring in obscurity whose findings amazed learned scholars, and many others. The story of this course is global in reach, traversing the Galapagos Islands, Jamaica, China, the Spice Islands of Indonesia, and Africa and even reaching into the cold vastness of outer space.

Surprisingly, we will see how many of the turning points of modern history are linked in startling ways, often building on one another or woven into a common web overlaid on the modern age. This interconnectedness, increasingly on a global scale, also is an emerging hallmark of modernity.

Most exciting of all is when our course considers turning points that are still turning! These are developments that are still in the process of unfolding in our lives today, with their consequences discernible (to the trained eye) in the events and dynamics of the present world. Ultimately, by tracking these evolutions, transformations, and connections, this course offers a better understanding of what it means to be modern. As a result, we can better understand ourselves and where we stand in the grand sweep of world history and the human project.

The final message of this course is an optimistic one: We reveal the astonishing capacity of human beings for creative responses to meet change and the shock of the new. Ordinary individuals, as well as great inventors

and thinkers, have encountered changes and not only turned them to positive uses but also pushed these transformations onward.

This course, in sum, is an astonishing voyage into the meaning of modernity in our world—its origins, challenges, perils, and rewards. Together, we will make a quest of discovery! ■

# 1433—The Great Voyages of Admiral Zheng He

## Lecture 1

Under the Ming dynasty, Zheng He, a eunuch admiral, sailed a great Chinese fleet to India, the Middle East, and Africa. Almost 30 years after they had begun, these voyages were mysteriously curtailed, but if they had continued, world history might have been very different. As we'll see, Zheng He's voyages were not about discovery or exploration but most likely meant to assert the symbolic authority of the Chinese emperor; they were called off when a sign from heaven appeared—a giraffe!—to affirm the good government of the dynasty.

### A Turning Point That Didn't Happen

- Imagine how world history would have changed if a huge fleet of ships from China had landed in the Americas 50 years before the voyages of Christopher Columbus. This could have been the moment when the hemispheres of the globe, previously largely isolated from each other, were united in one great historical encounter.
- On the deck of the flagship, directing this moment of global history, would have been standing a huge man, the Chinese admiral Zheng He, commanding a vast naval expedition to lay claim to this new world and bring it into the cultural orbit of the Ming dynasty.
- In the centuries to come, the ancient civilization of China would overspread North and South America in a dynamic process that would shape all of world history to come. The smaller European kingdoms, such as Portugal, Spain, or England, would be overshadowed and wouldn't even set forth to explore the oceans. But this was a turning point that didn't happen.

### Defining Our Terms

- We should begin by asking: What is a turning point? A turning point marks a decisive moment that shapes later developments. If it had not happened, or had happened differently, matters would have

taken an entirely different course in history. In this course, we'll look at crucial moments that have transformed the worldview of vast parts of humanity.

- What about the word “modern”? Modernity is a notoriously slippery concept because what is modern now soon becomes the past. The concept of “modern” is often applied to a historical period, starting in about the 15<sup>th</sup> century.
- Most often, attributes of modernity are thought to include the growth of technology, the autonomy of the individual, recourse to experimentation and science over the dictates of tradition, new concepts of popular sovereignty and equality, and new interconnectedness on an increasingly global scale.
- In a fascinating history entitled *The Birth of the Modern World*, historian C. A. Bayly adds another quality, arguing that “an essential part of being modern is thinking you are modern.” Thus, modernity involves a mindset that stresses novelty and breaks with the past.
- Paradoxically, the very concept of a contingent turning point—the organizing theme of our course—is itself quite modern. The term “turning point” was apparently first used in English in 1836. An awareness of change marks modernity.
- In this course, we will seek to trace how the attributes of modern life have developed by looking closely at shifts over time in what are seen as the true sources of authority.
  - What makes authority legitimate and trustworthy? Here is a key attribute of modern life: the concept of change as progress. In a modern society, change and progress have authority: They are looked to, invoked, hoped for.
  - By contrast, in traditional societies, time-hallowed ways were authoritative. Newness was not a recommendation or a merit but immediately suspect. In reality, traditional societies were not unchanging and frozen, but even when something

new was introduced, it would be presented as a revival of an earlier practice.

- By contrast, in modern societies, progress is sought in the new and the cutting edge. How did this shift take place, from novelty as suspicious to desirable? We will seek to follow how this inversion came to pass through each of our turning points.

### Background to the Voyages of Zheng He

- By the start of the 15<sup>th</sup> century, China had thrown off its earlier Mongol ruling regime and a new dynasty had commenced, the Ming dynasty, which would rule until 1644.
- A key concept that undergirded authority in China was the idea of the “mandate of heaven,” a concept that went back to the 4<sup>th</sup> century B.C. and was introduced by Confucian scholars.



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From their capital in Beijing and the new Forbidden City, Ming emperors ruled over what they considered the central kingdom, backed by the authority of 4,000 years of continuous Chinese culture.

- The heavenly mandate meant that when a ruler or a dynasty ruled in accordance with the laws of harmony in nature, its virtue would produce prosperity, well-being, and a government that was good for the people at large.
- By contrast, rulers whose misrule violated the mandate of heaven would bring down social disorder and natural disasters: floods, famines, plagues.
- After the disruptions that had passed under previous Mongol rule, the Ming dynasty prized stability and order—deeply Confucian values. The name of the emperor, Yongle, meant “perpetual happiness.”
  - At this time, Ming China had the most wealth and population of any economy in the world.
  - Chinese leaders thought of their realm as self-sufficient. And indeed, at the time, China presented a dramatic contrast with Europe—an advanced civilization compared to a society that remained relatively primitive.
- This conviction of the centrality of China was expressed in many ways. Among them was the view of commerce with neighboring countries. Trade was seen not as a mutually beneficial exchange but as a form of tribute sent to China, which the Chinese answered with magnanimous gifts.
- The Ming dynasty was not isolated or intellectually incurious, and its earliest rulers were adventurous. Emperor Yongle fought against the Mongols, invaded Vietnam, and ordered his great admiral, Zheng He, to launch a series of voyages across the Indian Ocean.

### **The Life of Zheng He**

- What we know about Zheng He is disappointingly fragmentary. He was born in 1371 amid troubled times. At that point, his name was Ma, and he was from the Muslim minority in Yunnan, in southwestern China. His father and grandfather had both borne the title *hājjī*, signifying that they had made the pilgrimage to Mecca.

- As a 10-year-old boy, Zheng He was captured by the armies of the first Ming emperor, who was fighting against the Mongols. He was taken into the imperial court and castrated to serve as a eunuch official, part of the ruling elite of the imperial household.
- At the court, Zheng He became a close adviser to the son of the first Ming emperor, who went on to become Emperor Yongle. Unlike other eunuchs, Zheng He grew into an imposing figure, supposedly seven feet tall and powerfully built.

### Zheng He's Voyages

- At the orders of his emperor, Zheng He sailed on seven voyages throughout Asia. The first of these took place in 1405 and the last in 1433. The fleets sailed to Malacca, Java, Sumatra in Indonesia, Thailand, Sri Lanka, Siam, India, the Persian Gulf, the Red Sea, Somalia, Zanzibar, and perhaps, Kenya.
- These fleets must have been imposing to see! Along with many smaller boats were the great treasure ships, 400 feet long with up to nine masts, watertight bulkheads, multiple cabins and decks, and huge crews. Europeans at this point had nothing that could compare.
- The voyages had many different purposes, but common to all was the projection of an image of power throughout the region to impress the claims to China's centrality and the emperor's authority.

### The End of the Voyages

- In 1433, these diplomatic voyages were stopped. This seems a tantalizing moment: What if the fleets had continued and had ranged even further? What if they had rounded the southern tip of Africa and continued westward to discover the American continents? Or what if they had headed beyond Java to come at new worlds from the east?
  - The author Gavin Menzies has claimed in his book *1421: The Year China Discovered America* that they did just that, landing in present-day Oregon. Menzies further argued that Chinese fleets visited Australia and Italy, touching off the Renaissance.



- Almost no historians agree with this argument, but it sums up the tantalizing sense of global possibility.
- Why were the voyages discontinued? First, Zheng He himself died in 1433. A tomb exists today in his hometown of Nanjing, but it is empty and, for many years, was all but forgotten.
- But even more than a matter of the fate of the eunuch admiral, the project of the voyages fell victim to the bureaucratic intrigues of the imperial court.
  - There, a professional civil service class of Confucian scholars wrestled with the eunuch class for control of the agenda of government. The scholars claimed that the travels were a waste of funds and lives, and they won. The voyages were called off, and the great fleet was left to rot at the docks.
  - Economic pressures may also have played a role as internal improvements made domestic trade more profitable than speculative overseas trade.
- This leaves us with a deeper question: Why did the voyages not go further afield, as part of a larger campaign of discovery?
  - The reasons for this have everything to do with the theme of authority that we will pursue in this course. From the start, these voyages were not about exploration or discovery of new lands, nor the scientific collection of specimens or mapping. In fact, the fleets traveled routes that were already familiar to private Chinese merchants and traders.
  - The real point of the voyages was to awe with what we today would call “soft power”: the glory, impressiveness, and riches of Chinese culture, which the imperial elite saw as central to the world as a whole. The expeditions were about confirming something that was already known: the universal authority of the Chinese emperor and China’s civilization.

- One particular passenger of the treasure fleets makes vividly clear that the voyages were about the assertion of authority. This was an African giraffe, brought back to China as tribute.
  - The giraffe seemed marvelous and exotic, but it was not considered fundamentally new or unprecedented; learned scholars said that it was, in fact, an animal already known from Chinese myth.
  - This rare beast was said to appear only at times of good government, when the emperor ruled in such a way as to bring order and prosperity. It was a sign of the mandate of heaven.
  - With the imperial Chinese authority so dramatically vindicated by the favor of heaven, the mission of the voyages was accomplished.

### Suggested Reading

Bayly, *The Birth of the Modern World, 1780–1914*.

Dryer, *Zheng He*.

Levathes, *When China Ruled the Seas*.

### Questions to Consider

1. Given that we know little about Admiral Zheng He, what do you see as his most important character traits?
2. If you were a member of the Ming court, how might you have argued for continuing these voyages?

# 1453—The Fall of Constantinople

## Lecture 2

Many educated people think they know about the fall of the Roman Empire. They believe that Rome collapsed when it was sacked in 410 and again in 455 or when Germanic tribes slouched into the imperial capital and deposed the last Roman emperor in the west in 476. Those bare facts are true, but the real end of the Roman Empire as a whole took place 1,000 years later, at the dawn of our modern age, with the fall of the imperial city of Constantinople to the Ottoman Turks. Today, this is the city of Istanbul in Turkey; in 1453, it was the focus of a dramatic turning point.

### Byzantium

- Part of our difficulty in recognizing that the fall of Constantinople was the true fall of the Roman Empire is that later historians imposed a name on the surviving empire in the east that was not used by the people who inhabited it themselves: Byzantium.
- In fact, long after the Roman Empire in the west had fallen, the survivors in the east thought of themselves as the true Romans and saw their state as, self-evidently, the real Roman Empire.
  - Constantinople had been established in 330 by Emperor Constantine, not far from where legendary Troy had once stood. It was to be the Roman capital of the east and so it remained.
  - It was set on a pivotal geopolitical spot, the meeting place of two oceans and two continents. Whoever ruled in this city seemed to bestride much of the known world.
- But all this came crashing down in 1453, as the last remnants of the Roman Empire in the east crumbled and fell. Why did the fall of Constantinople matter? In what sense is this a turning point of modern history? The answer is threefold.

- First, the end of the Roman Empire haunted modern consciousness and echoes into our own times. Our very word “empire,” from *imperium* in Latin, means “authority.” The seemingly universal empire of Rome had been a key source of political and symbolic authority, and what would now replace it?
- Second, the fall of Constantinople would prompt desperate bids to inherit the mantle of universal empire—even into modern times! It would be an abiding dream of men of destiny to revive the glory that had been Rome.
- Third, the collapse of this Christian empire in the east redrew the world’s political map in fundamental ways and touched off the European voyages of discovery that would lead Columbus to what for Europeans was a new world.

### Constantinople before 1453

- By 1453, Constantinople was in bad shape, but centuries before, it had flourished. Traders from across Europe and Asia mingled in its streets. Throughout the city were splendid churches, glowing with gold icons and crosses. The imperial palaces were dreams of marble, radiating power. But by 1453, this picture was much reduced.
- In 1204, in a terrible irony, a Crusader army had sacked Constantinople, and fellow Christians devastated the city.



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**Many tourists admire the bronze horses atop the Basilica of Saint Mark in Venice, but few know that those horses were stolen from Constantinople.**

- Next, Constantinople faced the onslaught of the Ottoman Turks, who swiftly conquered the Eastern Roman Empire's lands in the Near East, until Constantinople was reduced to its city limits.
- In these crises, Constantinople could not hope for help from the West, because doctrinal questions had separated the Western Latin Christians from the Eastern Orthodox Christians in the Great Schism of 1054.

### **The Fall of the City**

- Determined to capture Constantinople, a young Ottoman sultan, Mehmet II, and his armies began a siege on Easter Monday, April 2, 1453. Inside the walls, Emperor Constantine XI was determined to hold out, even if the situation was hopeless.
- The siege lasted eight weeks. The city's defenders strung a huge chain, floated on barrels, across the entrance to the inlet and harbor—the Golden Horn. They hunkered down behind the 1,000-year-old walls of their capital. Seven thousand defenders were matched against some 80,000 invaders.
- Outside the city was mustered the huge Ottoman army, which included Christian forces and the Janissaries, elite shock troops. A Hungarian artillery expert named Orban gave the Ottomans a dreaded new weapon, a 27-foot cannon that used gunpowder. It must have been deafening when fired; this was the sound of a military revolution, making stone walls, towers, and battlements obsolete.
- The defenders were delighted when some reinforcements arrived from the commercial city-state of Genoa, including an expert in fortifications. The Genoese expert helped the Byzantines rebuild or reinforce crumbling parts of the city wall by night after they had been pounded by cannon during the day. Further, Genoese ships managed to break through the Ottoman blockade and reach the harbor.
- But then, in an amazing military feat, the Ottomans lifted some of their own ships out of the water and rolled them two or three miles

over land. Eventually, they set the ships down in the water on the far side of the chain across the harbor, circumventing that defense.

- Through it all, Emperor Constantine XI refused to surrender and rallied both locals and Latin Christians fighting in defense of the beleaguered city, gathering them for shared worship at the Hagia Sophia. In a way, it was a truly remarkable moment—after centuries of doctrinal division within Christianity, in the last days of this besieged city, ecumenical unity appeared. But it could not stop the inevitable.
- After long weeks of siege and the relentless pounding of the cannon, the walls of Constantinople fell. The Janissaries raced in to exploit the breach, and the defenders fell back. The city fell on May 29, 1453, and was sacked by the forces of Mehmet.
- The news of the fall of Constantinople took some time to spread, but when it finally reached the West, it was met with shock, disbelief, and horror. Some refused to believe it or were certain that it must be reversed.

### **The Ottoman Victory as a Turning Point**

- As we said, Constantinople was already well past its glory days before the arrival of the Turks. Its fall was inevitable, only a question of time. How, then, is this a turning point? Apart from the historical event itself, its effects, especially how it was viewed by contemporaries, were shattering. They had become used to the notion that Constantinople was always under threat, perpetually in crisis, and yet it had always somehow survived.
- There were three main results of this turning point related to how the world was seen, with consequences to the present. The first of these is that after this final fall of the Roman Empire, much of the world would be haunted by the ghost of the memory of what Rome had been, what it had once achieved and represented.
  - In this earlier age, thinking about the implications of the fall of Constantinople was based on the medieval concept

of *translatio imperii*, the “transfer of rule,” as an organizing principle of history. European scholars looking out at the world concluded that history was based on a succession of empires, one following the other, based on divine favor.

- When one empire had played out its role, a new empire would arise to take its place. Babylon had given way to Persia, Persia to Greece, and Greece to Rome. Now that Rome was gone, what new power would follow? The vacuum left by the fall of Rome at Constantinople in 1453 was the turning point.
- The second result of this moment would be the recurring bids to inherit universal empire. Most strikingly, the Ottoman Turkish sultans saw themselves as the legitimate successors of the Romans. Indeed, after Mehmet had seized Constantinople, he next laid plans to capture Rome in Italy.
  - In a way, for the city of Constantinople, this eagerness of the new rulers to assert continuity with what went before was lucky. Instead of just fading into oblivion, the city dramatically revived under Ottoman rule, again becoming a center of authority, trade, and commerce.
  - The dream of inheriting the empire also was deeply influential in Russian history because Russia had received its Orthodox faith from Constantinople. This spiritual and historic link was expressed in the potent idea of Moscow as the “Third Rome.” The desire to ascend to this position led to a durable impulse in Russian foreign policy—an expansionist impulse that impelled Russia to grow in the following centuries.
  - In the German lands, the Holy Roman Empire, as it came to be called, claimed to be the successor to Rome. In the 19<sup>th</sup> century, the French leader Napoleon, as he swept across Europe, set about creating a Grand Empire, also outfitted with Roman symbols. Even as late as the 20<sup>th</sup> century, the dream of Rome endured. The German dictator Adolf Hitler’s attempt at a world empire also looked back to Roman models.

- Finally, the third result of the fall of Constantinople was the redrawing of the world map in the minds of men.
  - The decline and fall of that great imperial city contributed to a movement already taking place in Europe: the Renaissance. The texts brought out of Constantinople in the years leading up to 1453 fed a second wave of Renaissance activity that was based on the rediscovery of Greek texts. Most important of all was the teaching of the Greek language to the Italian humanists.
  - Further, the fall of Constantinople presented a geographic problem for Europeans. Trade routes with the Orient were now largely in the hands of the Ottoman Turks. The desire to outflank the Turks and find alternate routes for trade spurred European voyages of discovery, including the voyage that led Columbus to what was for him a new world.
  - This drive to outflank the Turks also had a strategic and religious dimension that recalled the Crusades: The key geopolitical location of earlier authority, Constantinople, had been lost, and the religious and political imperative was to find a way around that fact. In a real way, the loss of Rome opened a gap in the mental map of the world, and that gap was what became this turning point.

### Suggested Reading

Brownworth, *Lost to the West*.

Crowley, *1453*.

### Questions to Consider

1. What do you consider the greatest legacy of the Roman Empire that affects our times?
2. Do empires tend to die with a whimper or a bang?



# 1455—Gutenberg's Print Revolution

## Lecture 3

Some have called Johann Gutenberg's innovation of printing with movable type the single most important transformation of the modern world. From this beginning, the printed word launched the modern media and modern mass audiences for new information and ideas. In this lecture, we'll examine how the print revolution supercharged movements that we are well familiar with and that have shaped our modern world: the Renaissance, the Reformation, and the Scientific Revolution. Even more basically, we'll trace how the printed word changed concepts of authority—what was trusted and true.

### The World before Print

- What was the world like without print? In the beginning was the word—spoken and remembered. In both classical and medieval times, much effort was devoted to training the memory to allow people to categorize and recall stores of information and texts.
- The philosopher Socrates had misgivings about the effect of being able to rely on the written word; he predicted that writing would create “forgetfulness in the learner’s souls because they will not use their memories,” leaving them with “the show of wisdom without the reality.”
- Written texts were preserved on scrolls of papyrus or vellum (animal skins). In the monasteries, cathedrals, and universities of the medieval Christian world, these texts were not recorded in the vernacular language but in the holy language of Latin, narrowing access to the learned.
- The libraries of monasteries were repositories of rare, unique texts. If a copy needed to be made, this was done in the scriptorium, where a monk would reproduce, as closely as possible, the original text but inevitably yielding a product with its own differences and errors.

- Even in this timeless work of copying books by hand, there were transformations. One crucial one, largely complete by the start of the Middle Ages, involved the shift from a scroll to a codex, which is the form of our hardcopy books today: pages not rolled up but folded or stacked between covers.
- Bookselling became more of a business in the later Middle Ages. Stationers opened up shops around the young universities that arose in medieval Europe from around 1350, and there, scribes would produce copies of needed texts. What was a constant was the laborious process of copying by hand.

### **The Life of Johann Gutenberg**

- Gutenberg was perhaps born in 1394. He came from a notable family in Mainz, part of the elite, and became a skilled goldsmith, learning technical skills he later used for his invention.
- Gutenberg's innovation was in bringing together separate elements into one process. These elements included the printing press itself, individually cast type (as opposed to woodblocks), and a hand mold to produce individual type in a method resembling the minting of coins. Finally, he perfected an oil-based ink that would work best with these methods to print on paper or vellum.
- There had been precursors to these methods, notably in China and Korea, but Gutenberg seems not to have known about these advances. He called his project "the work of the books," a deliberately vague phrase, to hide his innovation, although he initiated some others into his secret as a way of getting them to invest. One such person was Johann Fust, a prosperous merchant in Mainz, who bought into Gutenberg's proposal.
- Gutenberg's business model probably involved religious authority. The Catholic Church had been in a state of turmoil for centuries, rocked by the Western Schism of 1378 to 1417, when rival popes asserted their claims to spiritual authority over Christendom. Even after a council had settled the matter, the unity of Christendom

seemed uncertain. What better way to achieve unity of religious practice and belief than issuing a uniform and approved Bible?

- Gutenberg set about printing the Bible and other texts with an eye to the religious market. Included in his output were pamphlets that spoke to the great issues of the day and indulgences, forms issued by Catholic authorities that could be purchased to release the buyer from sins.
- In 1455, just as Gutenberg hoped that he was about to make a commercial success of his printing of the Bible, his partner Fust lost patience with not getting repaid on his investment and took Gutenberg to court, where Gutenberg lost all his equipment; Fust took over the business.
- Gutenberg seems to have reconstructed his process and kept printing. His work included the ambitious encyclopedia the *Catholicon*, a “book of universal knowledge.” He died in 1468 in Mainz, unheralded but remembered—in spite of being a shadowy figure—for the change he introduced.

### **The Print Revolution**

- Printing revolutionized the speed and range of distribution of texts. A text that might have earlier taken several months to produce could now be delivered in 500 copies in one week. Costs came down with this proliferation, so that a printed book probably cost one-eighth of its former price.
- Earlier, texts had been the province of religious institutions, but now, access was democratized. The result would eventually be a large reading public, a mass audience for the printed word in the form of books, newspapers, journals, and pamphlets. Gutenberg’s invention also contributed to preserving and fixing texts. Hand-copied texts had all been different, even in the work of the most careful transcriber. But printed texts were increasingly standardized. Printers promised that their texts were purged of scribal errors, carefully proofread and examined, and thus, closer to the originals.

- The social changes provoked by printing, in addition to democratizing access, involved the creation of new forms of community around the common reading of printed texts and discussion of new ideas. A new kind of person, the intellectual, no longer necessarily a cleric or religious, emerged and communicated with others who had shared interests.
- From its German origins, printing spread at a fantastic rate in Europe and then worldwide. By 1465, German printers introduced printing to Italy and began a great wave of printing of classical authors. Paris had its first press in 1470; Cracow, in 1474; and Moscow, in 1555.
- The level of production also increased exponentially. It is estimated that by 1500, in all of Europe, some 40,000 individual titles had been published, and there were already some 20 million copies of printed books.
- At the same time as this turning point was vividly visible, it was not total. In fact, innovators of the printed word worked to reassure contemporaries that in some ways this was not so new or radical. Some printers specifically chose to call their craft “artificial writing” or tried to make their books look like traditional manuscripts.

### **Contemporary Views of Printing**

- The contemporary reactions to printing were mixed. Some called it a “divine art” because it promised to spread religious doctrine more consistently, uniformly, and authentically.
- Others, however, probably including many scribes, saw it as something from the devil. In at least one legend, Gutenberg’s partner Fust seems to have been confused with Faust, a legendary scholar who sold his soul to the devil to win total knowledge.
- The fact that print was not flawless—despite the claims of the printers—may have fueled contemporary anxiety. A famous case in England was the so-called Wicked Bible of 1631, in which the

printers accidentally rendered the Seventh Commandment as “Thou shalt commit adultery,” having left out “not.”

## Outcomes of the Print Revolution

- Among the biggest outcomes of this turning point were the later Renaissance, the Reformation, the Scientific Revolution, and the growth of national communities. The Renaissance and the intellectual movement of humanism predated the printing press but were supercharged by its potential. The humanist concern with regaining and reviving classical knowledge and wisdom was assisted by the new availability of classic texts.
- A half century after its invention, printing also supercharged the Protestant Reformation. In 1517, the Catholic priest Martin Luther announced his famed Ninety-five Theses, calling for changes in the church. What made this call different than earlier ones was that Luther’s writings were disseminated with great speed, thanks to the printing press.
  - In a sense, the fit between medium and message here was perfect. Luther’s message of *sola Scriptura* (“scripture alone”) as the true source of legitimate authority worked well with the new power to print Scripture. The spiritual significance of print was deep for Protestants, who stressed how vitally important it was for all believers to read the Bible themselves, as God’s word.
  - Reading that word in an unmediated way, as a source of direct authority, meant being individually responsible for one’s own salvation and relationship to God. The printing revolution



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**At the time of the Reformation, German printers were producing about a million books a year, and a third of them were by Luther—the first modern best-selling author.**

was key for the Protestant movement, because it meant that access to the Bible, now mass-produced and readily available, was possible.

- The Scientific Revolution, which introduced new knowledge about the observed world, was also sped along by print. One of the launching texts of this movement was a work published by Nicolaus Copernicus in 1543, in which he argued that the earth revolved around the sun, not the other way around.
- Printing also shaped the linguistic communities that we know and belong to today. To cater to mass popular audiences, printers moved beyond the Latin of learned texts to print in vernacular languages, the everyday speech of the people. In the process, they standardized these languages, giving them a form and fixity they had not possessed earlier.
- Historians also argue that the medium of print created a new sense of national community. Reading together, whether newspapers or novels, gave people a sense of belonging to what the historian Benedict Anderson has called an “imagined community” of the nation, united linguistically and by print.
- Of all the changes this turning point unleashed, let’s conclude by underlining the rich paradox at the heart of early printing: Printers announced that they offered ancient authoritative texts, accurately transmitted, cleansed of scribal errors—both old and “new and improved” at the same time. Paradoxically, in the pursuit of ancient wisdom, newness could be desirable. And it might, in the process, unexpectedly open up new worlds, as would be the case in the journeys of Christopher Columbus, which we consider in our next lecture.

## Suggested Reading

Eisenstein, *The Printing Revolution in Early Modern Europe*.

Man, *Gutenberg*.

## Questions to Consider

1. Do you agree with those who call Gutenberg the most important man of the millennium?
2. Was Marshall McLuhan right in arguing that “the medium is the message”?

# 1492—The Columbian Exchange

## Lecture 4

Without meaning to, Christopher Columbus initiated an event that has been called the most important historical turning point of modern times: the beginning of the binding together of the globe. This development took place not just politically and culturally but also environmentally, in ways that were both deeply productive and deeply destructive and that continue to work themselves out in our own day. Indeed, we are not even always sure what to call the achievement of Columbus. It was a discovery for him but not for the peoples of the Americas. Historians now often use the more neutral term “encounter,” and as we will see, it was a world-changing one.

### The Cosmology of Medieval Europe

- Almost no educated European thought that the world was flat at the time of Columbus. This story was propagated by Washington Irving and others who sought to establish Columbus as a man of science, resolutely modern, and struggling against what they condemned as the outmoded religious orthodoxies of the Catholic Church. In the process, however, these partisans of Columbus actually distorted both Columbus and his contemporaries.
  - Ancient authorities, back to the days of the great classical Greek philosophers, had understood the world as a sphere. Eratosthenes, for instance, in the 2<sup>nd</sup> century B.C., not only understood that the world was round but even constructed an ingenious experiment that yielded a remarkably reliable estimate of the circumference of the world!
  - The work of the man often considered the father of geography, Ptolemy, in 2<sup>nd</sup>-century Egypt, also used this model and sought to find ways of representing the earth’s curvature on maps.



- This understanding had endured. Among their badges of office, medieval kings and queens were shown holding a scepter and an orb, a representation of world rule.
- Another key representation of the medieval worldview was a particular kind of chart or map called a *mappa mundi*, “map of the world,” of which more than 600 survive. These were not accurate, scientifically determined outlines of geography but renderings of the world in spiritual terms, drawn on information from ancient authorities, especially Scripture.
  - Most often, the maps took the form of “T-O maps,” so called because their appearance is just that—a letter O with a capital letter T inside, dividing the world into three sections.
  - Of the directions, east was seen as most important and was placed at the top. That meant that above the top of the T was Asia, with Europe below to the left and Africa below to the right.
  - The spiritual center of the Christian faith was Jerusalem, so it was most often placed at the center of the map. The Garden of Eden, lying somewhere unknown to the east, surmounted the map as a whole.
  - In the cosmology of medieval Europe, this world was, in turn, surrounded by seven spheres of the heavens.

### **The Life of Columbus**

- Columbus was born in Genoa, a seafaring republic of northern Italy, in around 1451 and lived to 1506. In his youth, he gained experience as a sailor to Africa, England, and Iceland and was on a ship that was sunk by the French off Portugal.
- At the time, Portugal was the center of expansive voyaging. The Portuguese had begun sailing down the coast of western Africa, probing to find some access to the spice trade that the fall of Constantinople had placed in Muslim hands. Their aim was to head eastward.



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**Columbus calculated the distance to Asia by a series of hopeful leaps and bounds, as well as citations from ancient geographic writers, which he cherry-picked when they agreed with his theory.**

- Inspired, Columbus set about educating himself, focusing his energies on gathering information for a different project: sailing westward to reach Asia and its alluring treasures in Japan, China, and India. The stories of Marco Polo were his constant companion, along with other compendia of fantastic travels.
- Fired by his religious self-understanding, Columbus developed a sense of himself as having a divine mission, as a bearer of Christianity. After the reverses of the failed Crusades and the fall of Constantinople in 1453, he felt a calling to somehow turn the tables geopolitically, to find new riches and convert populations that would allow Christians to regain the lost Jerusalem.

- The last element that enabled Columbus's venture was a fateful and decisive geographical mistake. Many contemporaries agreed that in theory it should be possible to reach Asia across the Atlantic, but they also argued that the distance of empty sea was so great that such a voyage was impractical or impossible. Columbus, by contrast, calculated that the distance was much shorter.
- From 1484, Columbus tried repeatedly to find a patron for his voyage. Finally, after eight years of pleading, Queen Isabella of Spain agreed to fund Columbus, and his project was launched.

### **The Voyage to the "Indies"**

- At the age of 41, Columbus set sail with three ships from Spain on August 3, 1492. The winds driving the ships westward were so brisk that the crew feared not that they would fall off the edge of the world but, more simply, that they would never reach home again, forced out into the vast waters.
- Columbus was driven to a deception, keeping two ship logs in order to calm his crew and underestimating what he told them of their distance traveled. After 33 days of tense sailing, the ships sighted land on October 12.
- Columbus was convinced, and remained convinced, that he had reached Asia. In fact, he had landed on an island of the Bahamas; he then visited Cuba and what is today Haiti and the Dominican Republic but was sure that he had found his goal.
- After three months, the expedition headed home, and Columbus wrote a letter to his royal patrons, announcing his success and promising more soon. Over the next 12 years, Columbus made three more trips across the Atlantic, always convinced that he was in Asia. He died in 1506 in Spain, sure to the last that his dream had been fulfilled.

## Amerigo Vespucci and the Naming of America

- It would take some time for contemporaries to realize what it was that Columbus had, in fact, found. And it is for that reason that we do not call these continents North and South Columbia today but the Americas.
- The name came from Amerigo Vespucci (c. 1454–1512), an Italian sailor who was, at different times, in the employ of Spain and Portugal. Little is known about him, but he seems to have made several trips across the Atlantic about a decade after Columbus. Like his precursor, Vespucci was concerned above all with access to Asia.
- On his return to Europe after one of his voyages, Vespucci wrote some letters to friends about his travels. An unknown person then used text from these letters to fabricate a sensational account of what he had found. This text was entitled “Mundus Novus” (“New World”) and appeared in print around 1502. What the title conveyed was that the continent across the Atlantic was not Asia but a previously unknown landmass.
- A German geographer, Martin Waldseemüller, was impressed by this new geographic account. He and his colleagues in a small printing establishment in France incorporated these insights into a new map of the world, and Waldseemüller named the new lands after the Latinized name of Vespucci, “Americus”—in a feminized form, America.

## The Columbian Exchange

- The physical fact of the meeting and travel between what came to be called the Old World and the New World was a significant environmental turning point. The term “Columbian exchange” has been used to describe the resulting mixing of people, introduction of deadly diseases, exchanges of crops and animals, and flow of goods and trade.

- One of the first consequences of the Columbian exchange was the devastation of native American populations by diseases, including typhus, diphtheria, malaria, influenza, cholera, and smallpox. By 1650, it is estimated that 90 percent of the native American populations had died. This depopulation destroyed traditional societies, sapped their powers of resistance, and mightily aided the European conquest and eventual immigration.
- Another consequence of the Columbian exchange involved the exchange of crops and animals. European crops and domesticated animals (pigs, sheep, and cattle) were introduced to America, along with weeds and pests, while American species, including potatoes, tomatoes, and corn, entered the European diet. In fact, these improvements in diet enabled a huge growth of the European population in the centuries to follow.
- Columbus's American discoveries prompted further exploration in an accelerating process of competition. The lure of expansion and treasure was great and grew stronger. In 1519, Ferdinand Magellan, a Portuguese mariner in the employ of Spain, set out on an expedition that circumnavigated the globe by 1522, revealing the Pacific and the full extent of the globe. Spanish conquistadors toppled the Aztec and Inca empires with astonishing speed.
- The conquest and carving up of new lands also resulted in transatlantic slavery. The African slave trade, originally run by Africans and Arabs, was built up by the Portuguese, Dutch, and English as they carried Africans in bondage across the Atlantic for plantation agriculture. Up until the mid-19<sup>th</sup> century, this cruel trade would involve the forced movement of an estimated 15 million Africans.

### **Lasting Impact of the Encounter**

- As the contours of the new discoveries came into sharper focus, the kingdoms of Portugal and Spain turned to the pope to help divide the world among them. With papal mediation, a line was drawn in the Atlantic, with Spain assigned all the possessions to the west and Portugal, the newly claimed lands to the east.

- It's remarkable to think that this appeal went to the pope. But we should also note that other European kingdoms did not passively accept this division of the globe. Instead, a fierce competition would ensue over the question of who was in control.
- Harder to pin down but still important was the intellectual impact of the New World. European ideas of the New World paradoxically presented it as either better than the old or debased and inferior. For some observers, it was a new Eden, populated by "noble savages." For others, the Americas and Americans would never quite measure up to the Old World.
- This discovery of Columbus became a lasting archetype of a stunning encounter—yet we have seen that it was not what Columbus had set out for. This is an example of what is called "serendipity." The origin of this poetic term actually lies in the mysterious East that Columbus was seeking. A Persian fairy tale told of the "three princes of Serendip," who were always making unexpected discoveries.

### Suggested Reading

Bernstein, *A Splendid Exchange*.

Brook, *Vermeer's Hat*.

Crosby, *The Columbian Exchange*.

Lester, *The Fourth Part of the World*.

### Questions to Consider

1. If you had to choose one particular aspect of the Columbian exchange as the most important, which would it be?
2. In what ways has your everyday life been affected by the Columbian exchange?

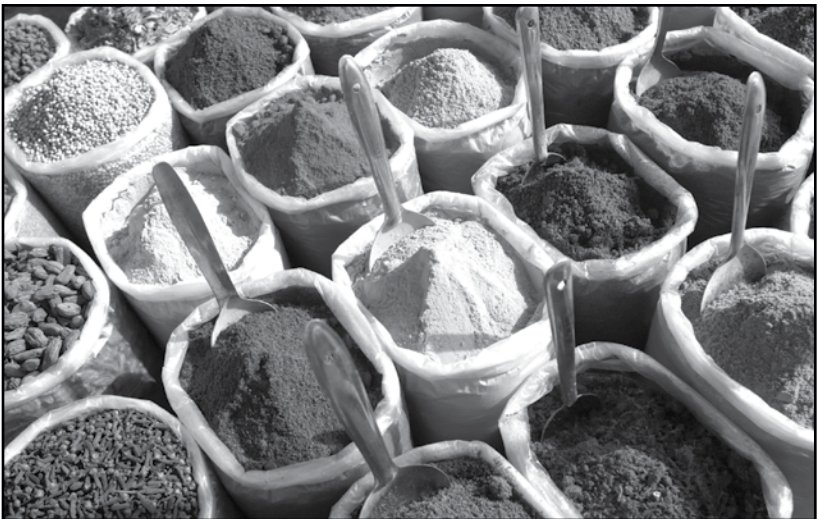
# 1600—The British East India Company

## Lecture 5

**T**his lecture examines the founding and growth of the English East India Company (later the British East India Company). We will see how it beat out its main rivals, the Dutch East India Company and the French East India Company. This turning point put Britain on the road to establish an empire on which the sun never set. It also saw the birth of the modern corporation, stock shares, and the commercial binding together of the globe. Globalization, much discussed today, is in fact quite old, and the year 1600 was a key moment in that ongoing process. Profit, trade, and capital would assume crucial authority in new flows of goods, people, and wealth.

### The Search for Spices

- Around the time of Columbus, Portuguese mariners had set off east—the opposite direction from Columbus—sailing down the



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**Spices made the preserved meat of Europeans palatable and were a great prize; pepper, cinnamon, ginger, cloves, nutmeg, mace—all could bring great wealth.**

west coast of Africa in search of a way to the Indies. These mariners sought riches in the form of spices.

- In 1488, the Portuguese rounded the Cape of Good Hope, opening the path to the Indies. They established the Goa trading colony on the west coast of India in 1510.
  - They then headed further east to the “Spiceries,” the Indonesian archipelago of 13,000 islands.
  - The Portuguese built forts and trading posts in the Moluccas, establishing a vast trading empire across Asia and Africa.
- Portugal’s traders had successfully outflanked the Islamic states, which had controlled the trade in luxury goods from the east. But now other maritime powers from Europe, the English and Dutch, would seek to outflank the outflankers!
- A global trade war ensued in the years around 1600. The English and Dutch advanced on the east, following the principle that even though there might be peace in Europe, there was “no peace beyond the line,” east of the Azores or south of the Tropic of Cancer.
- The English also attempted to discover another passage to Asia, either across the northernmost reaches of Russia or across the top of North America. The Dutch headed straight for the Spice Islands, and one of their mariners discovered the wind patterns across the Indian Ocean, allowing for accelerated travel to Indonesia.
- There, the Dutch found local populations who welcomed them, eager for competition in the trade with Portugal. Among the early Dutch ships that returned from the Indies, one made a 400 percent return on investment! Predictably, with profits like this, swarms of ships were soon heading off to the Indies, both Dutch and English. Their competition touched off a hot commercial war that would last for two centuries.



## **Chartered Monopolies**

- The vehicles for this competition and trade were chartered monopoly companies—the first multinational corporations. Because a trading venture was too large for one investor to take on alone, resources would be pooled in companies. To make the risk worth taking for commensurately high reward, European monarchs gave monopolies to these ventures. Many such companies came into existence in England, the Netherlands, France, Denmark, Sweden, Austria, Spain, and even Scotland.
- What made these companies a real advance in commerce was the notion of limited liability.
  - Earlier, merchants who cooperated on some speculative venture formed a partnership. If the venture was successful, the profits would be divided. But in case of failure, such as a shipwreck, the partners would be held liable for the losses, which could lead to bankruptcy.
  - But when investments were pooled in joint stock, investors could lose only what they had invested. As this practice developed over time, the stock would be devoted not just to individual voyages but to the business of the corporation on a much longer-term basis.
- On New Year's Eve in the year 1600, a group of 218 London merchants was granted a royal charter, giving them a monopoly on trade east of the Cape of Good Hope for 15 years. The English East India Company (EIC) was launched.
- The first voyages undertaken by the EIC were called “separate voyages” because each was individually financed; the investments plus profits were returned to investors. After 1612, these separate voyages were replaced by joint stock voyages. After 1610, the English established trading stations on the Indian coast.

## Rivals of the EIC

- Initially, a far bigger and richer rival of the EIC was the Dutch East India Company (known by the acronym VOC). It had capital resources 10 times larger than the EIC. Its power reflected the tremendous wealth and achievements of the Netherlands.
- The Dutch had the most commercially oriented society in the world. They had grown rich on trade, even as they fought for their independence from Spain, and enjoyed a Golden Age from around 1600 to 1720.
- The VOC was ahead of its rivals in its organization and financing. It was the first to establish permanent share capital and the first to issue stocks. It drew in a great number of investors from many parts of society. The Dutch government gave the company the right to make war or peace and sign treaties on behalf of the Dutch state.
- The VOC eventually built up a fleet of some 150 merchant ships and 40 warships. It had about 50,000 employees, including a private army worldwide. The company's headquarters in the east was the city of Jakarta in Java, which the Dutch had fortified and renamed Batavia in 1619. By about 1650, it is estimated that the VOC controlled half of Europe's foreign trade.
- At first, the English and the Dutch were able to coexist in the Indies, but the rivalry soon tipped over into open war. As the Dutch established their own spice monopoly in the Banda Islands, they increasingly saw the English as rivals to be excluded by force.
- These tensions finally boiled over in an infamous violent act: the 1623 Amboyna Massacre.
  - On the island of Amboyna (today Maluku, Indonesia), English and Dutch company outposts lay close to one another; the island itself was prized for its clove plantations.
  - Dutch traders arrested a Japanese mercenary working for the English and tortured him until he declared that the English were

preparing a surprise attack. The Dutch surprised the English and took them captive, subjecting some to water torture and executing 10 Englishmen.

- When news of the incident reached Europe, the English erupted. Mutual hatred led to a series of Anglo-Dutch wars in the period 1652 to 1784.

### **Redirection of the EIC**

- As a result of the violence in the Spice Islands, the EIC redirected its focus to trade in India, which previously had been more of a way station on the route to the east.
- At this point, the main power in India was the Mughal Empire, ruled by descendants of the Mongols, who had swept into India from the north in the 16<sup>th</sup> century. By the 1700s, the Mughal Empire seemed in decline, and the EIC found itself in a competition to pick up the pieces with a new rival, the French East India Company.
- Throughout the preceding century, the EIC had continued to evolve. This was a period that saw tremendous change in English politics: A civil war raged between the king and Parliament in the 1640s, ending with the beheading of King Charles I and the establishment of a Commonwealth under Oliver Cromwell; this was followed by the restoration of the monarchy in 1660, the overthrow of another king in the Glorious Revolution of 1688, and the union of Scotland and England in 1707 to form Great Britain.
- Throughout these changes, the EIC survived, sometimes barely. Jealous merchants from towns other than London argued against its monopoly, and the renewal of its charter was often in doubt, but the company persevered.
- From its new base in India, the EIC built up an effective and efficient administrative apparatus. The company was led by 24 directors and an overall chairman, who was elected by the stockholders. Armed East Indiaman ships were formidable presences on the seas,

carrying tremendous cargoes of porcelain, cotton and silk cloth, tea and coffee.

### Political Rule of India

- The growth of the EIC took a quantum leap with its assumption of political rule in India. In this, it contended against the French East India Company, chartered in 1664, which had established its own bases in Chandernagore in Bengal and Pondicherry (now Puducherry) near Madras.
- The rival companies trained and deployed armies recruited from locals, called “sepoys.” They increasingly involved themselves in Indian politics, favoring one or another prince.
- In these local wars, a figure named Sir Robert Clive took on a new military role and rose through the ranks of the EIC. In 1757, he defeated the far larger army of an Indian prince aligned with the French at the Battle of Plassey. The British installed their own loyal prince to rule Bengal.
  - The richest province in India now came under the control of the EIC, which ran its taxation and civil administration.
  - In the coming decades, the Indian holdings of the company expanded, forming the basis for the British Empire.
- The company had severe critics in its home country, including Adam Smith, who argued against monopolies as an impediment to free trade, and Edmund Burke, who condemned the damage to Indian traditions and the corrosive effects that the new wealth flowing back to Britain would have on British society.

### The Birth of Global Connections

- In the final analysis, the turning point represented by the founding of the EIC in 1600 went on to produce new global connections based on the authority of trade and profit. By the end of the 18<sup>th</sup> century, the EIC had outpaced its Dutch rival by diversifying its trade beyond spices to include textiles and tea.

- The lives of some of the officers of the EIC were also global in a sense. One man who prospered in service to the EIC was Elihu Yale, an American-born merchant who became the governor of the Madras settlement. In 1718, Yale College was named in his honor. According to his tomb, Yale was born in America, bred in Europe, traveled in Africa, and married in Asia. This sort of life was a new testimony to early globalization.
- An eccentric figure known as Walking Stewart, a former employee of the EIC, later argued that humans had no fixed identity but lived like a river, with everything constantly forming and dissolving. His personal philosophy underlined connections in a world of motion and his criticism of the EIC's oppression of the Indians represented a very modern awareness of this new globalization.

### Suggested Reading

Bernstein, *A Splendid Exchange*.

Bown, *Merchant Kings*.

Brook, *Vermeer's Hat*.

Lawson, *The East India Company*.

Robins, *The Corporation That Changed the World*.

### Questions to Consider

1. Do you consider the East India Company heroic, exploitative, or both? Why?
2. What aspects of early capitalism seem most unfamiliar today?

# 1648—The Treaty of Westphalia

## Lecture 6

The world we know seems almost to have a default mode of international organization: the sovereign state as a political powerhouse. But how did this international order come into being? In this lecture, we will examine a key turning point in international politics that had a global impact. This turning point came at the end of the Thirty Years' War in Europe in 1648, a war that itself came at the end of about a century of religious slaughter and warfare in the Western Christian world. The peace settlement that ended the Thirty Years' War—the Peace of Westphalia—pointed international politics in a new direction.

### Authority in the Middle Ages

- Much of earlier history is a contrast to our current model of divided sovereignties and authority. The earlier ideal was that of universal authority, often expressed in empire. For much of human history, empire was a more common form of political organization than the nation-state or republic.
- In the Middle Ages in Europe, authority was seen as divinely sanctioned and universal in its claims and reach. Of course, the fact that both church and state appealed to divine authority could lead to conflicts. Two institutions of the Middle Ages in particular exemplify this conflict: the pope and the Holy Roman Empire.
- The church and the imperial state were intertwined in a vivid way: The emperor often controlled who became pope in Rome, while only a pope could crown a Holy Roman Emperor. Who would dominate in this relationship? Both sought to inherit the authority of the Roman Empire.
  - During the 11<sup>th</sup> and 12<sup>th</sup> centuries, as part of a movement for reform, a series of popes made claims to temporal authority, creating what has been called a “papal monarchy.” In 1075, Pope Gregory VII claimed that the pope had the right

to depose the emperor. These claims led to the so-called Investiture Controversy.

- In the 12<sup>th</sup> century, the Roman Catholic Church was at the height of its political and secular power. When new monarchies arose to challenge that power, especially the king of France, Pope Boniface VIII announced a ringing assertion of papal primacy in the bull *Unam Sanctam* (1302). Shortly thereafter, French soldiers arrested the pope!
- Later popes were pressured to rule under French supervision in Avignon. Rival popes claimed authority, at one point three at one time. Such scenes damaged the political credibility of the papacy.
- The Holy Roman Empire had its own claims and problems, as well. This institution had been founded when Charlemagne was crowned by a pope in Rome in the year 800.



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**The crowning of Charlemagne as Holy Roman Emperor was an act meant to revive the glories of the Roman Empire in the west.**

- The name “Holy” conveyed the spiritual power ascribed to the Christian empire. Theoretically, the Holy Roman Emperor was to have primacy over all other kings and princes in Christendom.
- Symbolically, that might be true, but in practice, the empire had weakened and its borders had shrunk to mostly German lands. The throne was not hereditary but an elected office, which gave power to the nobles who elected the emperor.
- At a time when such kingdoms as England, France, and Spain were starting to centralize, the Holy Roman Empire remained a feudal jumble of overlapping and multiple principalities, kingdoms, free cities, territories, and noble estates.
- In contrast to the papacy and the Holy Roman Empire, monarchs of centralizing kingdoms were on the rise in the early modern period and were not shy about reaching for religious legitimation themselves.

### Religious Warfare

- The theological debate that was launched by Martin Luther in 1517 was carried out initially from pulpits and in print but later erupted in warfare, offering the scandalous spectacle of Christians killing Christians over points of doctrine.
- Germany was hit first, a country divided between Catholics and Protestants.
  - Protestant princes banded together to oppose the Catholic emperor. The war ended inconclusively, but the emperor was forced to acknowledge the Lutheran princes.
  - The Peace of Augsburg (1555) established the formula of *cuius regio, eius religio* (“whose rule, that person’s religion”). By this, a prince could choose which faith to establish officially in his lands, and those of a different faith could either convert or emigrate.



- France was next, where the Wars of Religion lasted from 1562 to 1598 and included such atrocities as the Saint Bartholemew's Day Massacre of thousands of French Calvinists in Paris.
- Religiously inflected war also erupted in the Netherlands, which had been under Spanish rule. The Calvinist Dutch revolted against their Catholic rulers in 1568, the start of the Eighty Years' War for independence for the Dutch, only achieved in 1648 at the Peace of Westphalia.
- Then, the Thirty Years' War broke out in the Holy Roman Empire and the German lands in 1618. This war has been called the "outstanding example in European history of meaningless conflict."

### **The Thirty Years' War**

- The war started absurdly, with imperial messengers being thrown out of a window in Prague by Protestant leaders in Bohemia defying the Catholic emperor—the famous Defenestration of Prague. The war spread into the German lands proper as Protestants and Catholics rallied to their princes.
- In the first years, things went so well for the Holy Roman Emperor that he must have been exultant, thinking that perhaps his universal claims might not be so impractical after all. But precisely for this reason, outside powers were dragged in. The kingdoms of Denmark and Sweden entered the war as Protestant champions against the emperor.
- What had started as a religiously colored conflict mutated and became something less coherent. Catholic France also entered the war against the emperor and against Spain, his ally. Eventually, more than 200 states were drawn in.
- The war grew ever more muddled, with the Dutch-Spanish war folded in. Conflict even extended beyond Europe: There was fighting between the Dutch and the Spanish in Brazil, and a Dutch admiral captured the Spanish treasure fleet in Cuba in 1628.

- To many ordinary people caught up in this war, the claims and counterclaims, political and religious, seemed increasingly pointless when set against their own suffering.
  - The German lands were destroyed in this manmade disaster. Germany became the playground for huge mercenary armies, fighting for whoever would pay best and living off the land, plundering, pillaging, raping, and killing.
  - Some million soldiers took part, and it is estimated that about a third of them died. But the civilian losses were far greater. Current low estimates put the deaths at about 15 to 20 percent of the German population, more than three million.

### Negotiating a Peace

- Understandably, a great and general longing for peace grew. Because the war was not decided by one final and conclusive victory, it would need to be a peace of compromise and be based on principles other than the religious orthodoxies that had sparked so much conflict.
- Negotiations opened in the western German land of Westphalia in 1643, a mixed Catholic and Protestant area. But the fighting continued even as negotiations went on, which complicated the discussions immensely.
- The negotiations took place in two separate towns, Münster and Osnabrück, which were diplomatically exempted from warfare. Some 200 rulers and thousands of diplomatic officials participated.
- The negotiations dragged on for five years, in part because nothing quite like this had ever happened before: a peace congress for all of Europe. Diplomatic ceremony and etiquette were symbolic matters that this age took very seriously.
- Crucially, this conference was not presided over by a universally recognized authority—neither the Holy Roman Emperor nor the pope.

## **Emergence of a New Order**

- The resulting treaties confirmed that rulers of territories would have superiority in all matters ecclesiastical and political in their own lands.
- The religious compromise essentially repeated the formula of the Peace of Augsburg from almost a century before, although the new formula recognized the Calvinists and guaranteed the ability of religious minorities to practice their religion.
- In general, the treaties moved toward sovereign independence for territorial rulers as a practical solution, not as a theoretical model. The United Provinces and Switzerland were recognized as independent, and within the Holy Roman Empire, its princes also gained the power to make peace and war at will (but not war against the emperor).
- All this weakened the remaining structures of the Holy Roman Empire, as did the loss of German territories to France and Sweden. In many ways, Germany would remain a power vacuum until national unification in the later 19<sup>th</sup> century.
- The treaties were ceremonially signed on October 24, 1648. When news of the peace spread, church bells were rung in Prague, and celebration feasts were organized in countless villages and towns in Germany.

## **The Significance of Westphalia**

- The Westphalian international system involved the recognition that world politics would not be under the rule of one universal authority but, instead, would be a constant, dynamic interplay of states, seeking to preserve their sovereignty and their own advantage.
  - The worldview of contemporaries increasingly saw international politics not in terms of a divinely ordained hierarchy but in terms of balance. Indeed, the concept of the “balance of power” would be a key model for how the world works, politically, up to our times.

- Some scholars today ask whether we are now moving past the Westphalian settlement. The European Union, for instance, involves ceding or pooling individual countries' sovereignty to achieve a more perfect union. The Internet and the forms of community that can be built in cyberspace are no longer territorial. Where does that leave the territorial sovereign state?
- Others pose questions about sovereignty itself, which excludes the outside interference of other powers in domestic issues. What happens when a sovereign state uses its powers to abuse those under its control? May outside powers justifiably intervene? Such questions are urgent in our own times.
- This turning point was not carefully and consciously planned. The most immediate priority for the negotiators was simply ending the torment of their continent.
  - The changes introduced by the peace happened not for theoretical reasons but out of pragmatism, which means that the Peace of Westphalia was not a singular moment where everything happened at once. Rather, the movement toward sovereignty as a model predated 1648 and continued after.
  - This was not an absolute and clean break but nonetheless a turning point. At the ground level, for ordinary people, this new model eventually brought authority closer to their lives.
- The Peace of Westphalia also had lasting effects as a precedent for later peacemaking. It did not end future wars, but it provided a template for how to negotiate. The very institution of an international peace congress could now be duplicated, and was, at the negotiations for the Treaty of Versailles after World War I or in countless summit meetings in our own times.

## Suggested Reading

Wedgwood, *The Thirty Years War*.

Wilson, *The Thirty Years War: Europe's Tragedy*.

## Questions to Consider

1. What are the greatest inherent strengths and weaknesses of the Westphalian international system of territorial sovereignty?
2. Do you think that the Westphalian international system is being transformed now and, if so, into what new system?

# 1676—Van Leeuwenhoek's Microscope

## Lecture 7

What does it look like when an entire new dimension of existence is discovered—not just a continent, as in Columbus's encounter with the Americas, but an entire world never seen before by humans? In 1676, Antonie van Leeuwenhoek was the first to see bacteria under a microscope, and he later catalogued a wide range of microorganisms. This lecture will demonstrate that discoveries such as Leeuwenhoek's take place in a double context: They come out of both the individual inquiry and work of particular people, but they also fit into a wider social or cultural context that determines whether they are recognized and used or denounced, forgotten, and discarded.

### The Golden Age of the Dutch

- Leeuwenhoek first made the discovery of bacteria on April 24, 1676, in Delft, the third largest city in the Netherlands (the United Provinces). Dutch society was in the midst of a Golden Age, often defined as the period from 1570 to 1700. It was a new kind of commercial society, marked by a degree of religious toleration and tolerance for new ideas that were remarkable at the time.



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**In the Golden Age of the Dutch, the graceful blue-and-white pottery known as Delftware was produced as a homegrown version of exotic Chinese porcelain.**

- Dutch society was also plugged in to an emerging world economy through global trade networks, especially those of the VOC. Vast cargoes of pepper, cinnamon, cloves, coffee, sugar, and tobacco flowed in to the Netherlands, to be transshipped or consumed there.

- This society produced financial masterpieces in its new economy: its stock market and the Amsterdam bank. With a population of only some two million, the Dutch enjoyed a standard of living that was the envy of most of the world.
- The Dutch were also a military power, having won their independence from the Spanish Empire after a war lasting 80 years. Further, they were most distinctive politically; the United Provinces was a republic, not a kingdom—a federation of lands with a merchant elite.
- The Dutch produced both masterpieces of visual art and technical equipment of the highest standards, especially for sea voyages. Both the telescope and the microscope were developed in Middleburg.

### **The Scientific Revolution**

- Leeuwenhoek's discovery demonstrates a broader shift that was taking place at the time in intellectual authority concerning material things. Earlier, classic texts by such authors as Aristotle, Ptolemy, and Galen or Scripture were seen as the final word on the natural world. But now, authority was shifting (slowly) from ancient texts to experiment—to what could be demonstrated by the scientific method.
- Scientific explanation pushed aside theological or literal scriptural explanations of the natural world. In this sense, it precipitated a significant transformation in human thinking, which some have argued was even more profound than the Reformation. One could argue that we are still in this period now, seeking to assimilate the latest developments in many different fields of science.
- This intellectual earthquake began more than a century before Leeuwenhoek's experiments. A key area was astronomy. The astronomer Nicolaus Copernicus, born in Poland, overturned the small and tidy medieval universe described in our lecture on Columbus, those celestial spheres harmoniously turning around the earth.

- In place of this earlier scheme, Copernicus offered a model of the solar system, published in 1543. Protestant and Catholic religious authorities criticized his model, which seemed to upset the traditional place of humans and the divine.
- The Italian astronomer Galileo Galilei entered the debate when he learned of the Dutch work on telescopes, built one himself, and turned it on the nighttime skies to make direct observations. He saw mountains and craters on the moon, the moons of Jupiter, and sun spots.
- Galileo's work suggested that the universe was a material thing and far larger than had been understood before. For his championing of Copernicus's model of the solar system, Galileo was brought before the tribunal of the Roman Inquisition of the Catholic Church in 1633 and placed him under house arrest for the rest of his days.
- The work of the English scientist Sir Isaac Newton was a synthesis of, and advance on, these earlier revolutionary ideas. In his masterwork, the *Principia* of 1687, he outlined the principles of classical mechanics and his three laws of motion, as well as the universal law of gravitation.
- With Newton's work, the world itself came to appear ever more regular, more mechanically efficient, and orderly, explained mathematically on the basis of universal laws. This worldview has been called "Newton's world machine" and typified how the world was seen until the impact of quantum physics at the start of the 20<sup>th</sup> century.

### The Life of Antonie van Leeuwenhoek

- Leeuwenhoek was born in 1632 in Delft, Holland. His parents were middle-class artisans. In 1648, just as the Peace of Westphalia was signed, Leeuwenhoek left his hometown for an apprenticeship with a cloth merchant in Amsterdam. He then returned to Delft, where he ran his own store.



- He did not have extensive formal education and spoke only Dutch at a time when Latin was the language of truly learned discourse. In 1660, he was appointed manager of the city hall and made an inspector of weights and measures and a surveyor, all testimony to the trust placed in his skills for exact observation.
- Over the next 20 years, Leeuwenhoek took up lens grinding and became a master. He produced tiny lenses, less than an eighth of an inch across, of tremendous power and made hundreds of microscopes.
- More important than the equipment he made was Leeuwenhoek's methodical use of it. He set about making fine observations of almost everything he could get his hands on: the head of a fly, the eye of a whale, the compound eyes of beetles, his own skin. People in his neighborhood apparently saw him as either a magician or a fantastical storyteller, spinning crazy tales about mythical invisible creatures he had seen.
- At this point, the collective character of science entered the picture. The Royal Society of London had been formally chartered by the king in 1662, and Isaac Newton was among its members. One of its international corresponding members was Regnier de Graaf, a doctor in Delft.
  - Graaf was astonished with what he saw in Leeuwenhoek's study, and in 1673, he urgently pressed the Royal Society to request that this man write to them about what he had found.
  - At first, Leeuwenhoek was not believed, but when others in England duplicated the experiments he described in his letters, he was made a full Fellow of the Royal Society in 1680.
- Over the course of 50 years, Leeuwenhoek wrote hundreds of long, rambling, astonishing letters to the Royal Society. His experiments never ceased. He examined lake water, the plaque of his own teeth, human sperm, and blood. He discovered red blood cells and was the first to see the nuclei of those cells.

- In his observations, he engaged in painstaking measurements, using units the size of a grain of sand or the eye of a louse! Through it all, he seems not to have suspected that microbes can be a source of disease; certainly, as we now know, he saw bacteria that were both helpful and harmful to human life.
- Leeuwenhoek remained profoundly critical in his outlook, always willing to change his own ideas when proof was found to the contrary. He argued against those who believed in so-called “spontaneous generation,” the notion that rotting cheese automatically produces maggots or that piles of dirty clothes spontaneously generate mice.
  - In part out of his religious conviction that God had once and for all created a universe whole and entire—without such ongoing creation—he was convinced that all creatures had parents like themselves and life cycles all their own.
  - To observe those life cycles, Leeuwenhoek walked around with worms in his pocket and asked his wife to keep insect eggs warm under her dress in the chilly Dutch climate. He even kept a colony of lice inside his stockings to observe them, but the itching became unbearable and that experiment was called off.
- When Leeuwenhoek died at the age of almost 91, his will ordered that 26 of his microscopes be sent to the Royal Society. This bequest was generous, because he had never shared them before. But while alive, he had avowed that his work was not for financial gain or fame but for “discovering the things that are buried from our eyes” and to satisfy a “craving after knowledge.”

### The Context of Leeuwenhoek's Work

- The specific social context into which Leeuwenhoek's work fit was the Dutch Golden Age. The Dutch were proud of having formed their land out of constant struggle—both the struggle for independence from Spain and the battle against nature itself.
  - The Netherlands struggled to reclaim low-lying lands from the tides, to hold them back by dikes, and to pump them dry using

the windmills that soon became a national symbol. Because these territories were newly won, they were national property, not the holdings of a feudal aristocracy.

- In the revolt against Spain, many fiery leaders had been Dutch Calvinists, but not all the Dutch were of that confession. There still remained a sizable and patriotic Catholic minority, as well as other branches of Protestants.
- The result was that the Dutch showed a measure of religious toleration and intellectual openness that set them apart from the rest of Europe. This famous toleration became a magnet for religious refugees, especially Jews fleeing persecution.
- Dutch society was also something new in economic terms, a society oriented toward commerce instead of agriculture. The Dutch first dominated the Baltic grain trade, then the shipping trade between northern Europe and the Mediterranean, and then they went global. How astonishing that so small a country would become the dominant trading power of Europe!
- In general, wealth flowed into the Netherlands, which created moral problems for a society often dedicated to the austere religious doctrines associated with Calvinism. At least one historian has noted that Dutch society in the Golden Age was marked by a troubled conscience about the enjoyment of wealth versus the religious call to repent and deny oneself.
- Leeuwenhoek's turning point had striking long-term effects. His recognition of the microscopic world was crucial to the development of microbiology, especially the later development of germ theory. Perhaps his greater accomplishment was in giving intellectual authority to that which is seen, measured, observed, and assessed over the earlier authority of classic texts.

## Suggested Reading

Brook, *Vermeer's Hat*.

Schama, *The Embarrassment of Riches*.

Waller, *The Discovery of the Germ*.

## Questions to Consider

1. Which was more important in leading to the discovery of the microscopic world: Leeuwenhoek's character or the cultural context of the Dutch Golden Age?
2. Do eccentrics make the best researchers and inventors?

# 1751—Diderot's Enlightenment Encyclopedia

## Lecture 8

Unlike the Dutch society discussed in our previous lecture, France in the early 18<sup>th</sup> century was not marked by toleration and openness; it was a place where so-called heretics could be executed for their words and ideas. Nevertheless, Denis Diderot and his fellow writers in France produced a daring work, an encyclopedia, that proved to be a turning point for modern history. It was not the first encyclopedia, but it led to profound changes in the worldview of contemporaries that we associate with the Enlightenment, a general movement to replace tradition and faith with reason and science.

### The Birth of the *Encyclopédie*

- In 1745, a rich publisher named André Le Breton had hired a young Englishman in Paris to translate a two-volume English dictionary so that it could be published in French. Le Breton was so enthusiastic about the project that he invested his own money in it, but he later learned that the Englishman wasn't equal to the task and had made no progress.
- The publisher then approached a young writer in Paris, Denis Diderot, to undertake the work, along with the young mathematician Jean le Rond d'Alembert. In short order, the project changed into something quite different and incomparably more ambitious.
- The book was to be sold by subscription, with subscribers receiving the volumes as they were produced. At a time when print runs were small, the *Encyclopédie* garnered many subscriptions, some 4,500 in France and across Europe. As the work progressed, additional volumes became necessary, beyond what had originally been promised. Eventually, there would be 17 volumes of text and another 11 of illustrations.

- The *Encyclopédie* was the largest reference work and publishing project of its time. It was read by individuals, families, and reading clubs and societies, and all of them took in its message of enlightenment.

### The Enlightenment

- The Enlightenment was an intellectual, social, and political movement that aimed to take the scientific method out of the laboratory or scholar's study and apply it to all spheres of life.
- The imperative was to break with the past to create progress. Reason, science, and utility were the watchwords of Enlightenment thinkers, or *philosophes*, lovers of knowledge. These values were opposed to traditional revealed religion, which these thinkers considered to be organized superstition and fanaticism.
- Inspired by Newton's discoveries and the image of a "world machine" that obeyed natural laws, many *philosophes* were Deists, believing that a supreme being had ordered the universe and then stepped back to let it run, like an absent watchmaker. The business of rational beings was to understand the scientific truths encoded in the world and, on the basis of these laws, to improve and perfect human existence!
- The Enlightenment, then, offered a comprehensive explanation of how the world worked and what it meant. It was the first of the modern secular ideologies, to be followed by liberalism, nationalism, socialism, fascism, and so on. The movement was international but was strongest in France.

### Coded and Explicit Messages

- Beyond an assertion of comprehensive knowledge, the Enlightenment message was encoded in the *Encyclopédie*. Diderot and his friends wrote under censorship and needed to be careful in expressing themselves.

- It has often been pointed out that anyone who now reads the original *Encyclopédie* expecting wild, revolutionary statements will be disappointed. Instead, these thoughts were smuggled in or slyly hinted at.
  - Consider the explanation that the editors gave for how all human knowledge was structured. They offered a diagram of all branches of knowledge as a tree—astronomy, geology, zoology, and so on. They called this their world map, or *mappemonde*.
  - Recall from our lecture on Columbus that a *mappa mundi* was a cosmological depiction of the medieval worldview. The map in the *Encyclopédie*, in contrast, was a cosmology or worldview of the Enlightenment.
  - If one looked closely, this diagram revealed a subversive message. Religion is somewhere in the tree's outer branches, along with "superstitions," "fortune-telling," and "black magic." What in earlier centuries had been a supreme authority was set aside by the *philosophes*.
- Especially subtle and telling was the editors' use of cross-referencing as deliberately subversive and ironic commentary. In the most famous example, the entry on "cannibalism" directed readers to other entries for the Christian sacrament of the Eucharist.
- Beyond such veiled meanings, the explicit message of the text was that practical trades and crafts were noble and useful and that usefulness was a source of authority.
- Throughout the text, especially in ironic comments, contributors added criticisms of the status quo and established power, whether religious or political. They carefully scorned despotism or the divine right of kings in favor of a reformed political system in which the monarchy would be sensitive to its subjects. Raising up the dignity of craftsmen and workers also meant lowering the exalted social positions of aristocracy and clergy.

- To dignify usefulness as a virtue, the writers of the *Encyclopédie* sought to capture the techniques and secrets of the trades of artisans. The many detailed and careful engravings showing artisans at work celebrated their productive work.
- Another shocking aspect of the *Encyclopédie* was its unapologetic novelty. In earlier times, even innovative thinkers harkened back to the classics for authority. But the editors of the *Encyclopédie* insisted on the modernity of their project. In the introduction, Diderot stated that only this age could have produced the *Encyclopédie*, that it “could only have been the endeavor of a philosophical century.”

### Diderot and the *Philosophes*

- Denis Diderot was born in 1713 in Langres into a lower-middle-class family. These origins did much to shape his outlook and agenda. His father was a master cutler but had hopes for his intelligent son to advance by entering the Catholic Church as a cleric. He sent his son to Paris to be educated by Jesuits and to make a career in the church.
- Instead, Diderot set out to become an independent writer. His first works were translations of English philosophical and scientific works. His own early writings were not well received by the authorities, especially for his criticism of religion. This man who had been on the path to the priesthood turned decisively against Christianity.
- As the years went by, Diderot's atheism became stronger, and he avowed a materialistic view of the world. One of his essays provoked the authorities and, in 1749, led to his being imprisoned for three months. Later, he would write philosophical novels, plays, treatises on drama, and art criticism. He grew fierce in his condemnation of European imperialism and slavery as great crimes.
- Diderot's coeditor to begin with was d'Alembert, the illegitimate son of a minor noble, who went on to become a talented scientist. The editors recruited more than 160 other contributors, including



Voltaire and Rousseau. Less well known but deserving of mention was Louis de Jaucourt, who increasingly carried the work of the *Encyclopédie*. Some estimate that he wrote about 27 percent of all the entries.

### Controversy Surrounding the *Encyclopédie*

- The *Encyclopédie* had many enemies. In part, the controversies it unleashed were deliberate—the *philosophes* enjoyed antagonizing those they saw as opponents of progress, and such scandal actually stimulated general interest in the *Encyclopédie*.
- But this could be a dangerous game. Royal orders threatened death for those writing, publishing, or selling works that were seen as treasonous. The Jesuits (who also had their own rival encyclopedia) charged Diderot's work with plagiarism and sedition. The *Encyclopédie* was allowed to continue under the supervision of three theologians.
- More controversy followed, until in 1759, the French state revoked authorization for the work. But the chief censor, friendly to the project, worked out a way for it to continue being produced.
- Pope Clement XIII condemned the work, and the Catholic Church placed it on the Index of Forbidden Books. The pope ordered all copies owned by Catholics to be turned in to be burned.



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**Another fan of the *Encyclopédie* and patron of Diderot was Catherine the Great of Russia, although she believed that the work was too subversive to be shared with her subjects.**

## The Impact of the *Encyclopédie*

- The *Encyclopédie* was reprinted in multiple editions, reaching an estimated 25,000 sets. Scores of pirated and plagiarized editions followed, spreading the message even further. The success of the *Encyclopédie* inspired an English language project, the *Encyclopedia Britannica*.
- In the long term, the *Encyclopédie* pointed toward the Industrial Revolution. Practical craft, utility, improvement of quality, and technical progress would be key values of that transformation of economics and production.
- More broadly still, it announced and encouraged changed views of authority. Diderot himself had written, “No man has received from nature the right to command others.” Any political authority needed to be agreed upon, as in a contract, and rational. The “laws of reason” were paramount.
  - Not everyone agreed with this understanding of the Enlightenment or this reconfiguration of authority. The statesman and philosopher Edmund Burke, often considered the founder of conservatism, worried that the abstract theorizing and universal principles of the *philosophes* threatened to dissolve those attributes of society that were not founded on reason but still valuable: ties of tradition, conviction, and faith.
  - The German Enlightenment thinker Johann Gottfried von Herder feared that the universalizing tendencies of the Enlightenment would devastate cultural diversity, the mosaic of a thousand different ways of being human: different languages, literatures, and ways of life. This debate would continue, and does, down to our own day.
- For his part, Diderot, toward the end of his life, actually believed that he had failed, that the *Encyclopédie* had not succeeded in becoming what it might have been. He had been devastated to discover that his publisher, Le Breton, had secretly toned down some of his controversial entries. This colored his perception of the whole.

- Yet the impact of the *Encyclopédie* was enormous. When Diderot died in 1784, his last words were: “The first step toward philosophy is incredulity,” not to believe. This was a radical message, prompting the testing of everything. In the decades to come, when empires and kingdoms were tested, in part by the ideas of the *Encyclopédie*, the result would be revolutions.

### Suggested Reading

Blom, *Enlightening the World*.

Fowler, ed., *New Essays on Diderot*.

Himmelfarb, *The Roads to Modernity*.

### Questions to Consider

1. What gave Diderot’s encyclopedia so much more resonance than other encyclopedias?
2. Did censorship in France hamper the *philosophes* or spur them on?

# 1787—The American Experiment

## Lecture 9

In the worldview of the 18<sup>th</sup> century, republics were not generally seen as desirable or natural. A republic to most thinkers meant a form of government that was small, weak, and temporary. But the American revolutionaries challenged and overthrew such assumptions. After winning independence, they set about building a republic that would stand the test of time. To do so, they constructed a Constitution that separated powers, balanced contending interests, and was flexible enough for the future of a growing nation. The American Revolution and the building of its durable constitutional order launched a modern political project: the republic based on popular sovereignty—government of the people, by the people, and for the people.

### The American Identity

- Paradoxically, the revolt of the English colonies in North America was sparked precisely because the colonists thought of themselves as Englishmen with full rights. Only slowly, over time, would a self-understanding of being distinctively American arise. And the bases for that American colonial identity had already been laid decades before by three factors.
- First, from their founding, the colonies had largely been left in a state of benign neglect by British administration rather than centralized oversight. Practices of colonial self-administration grew vigorous.
- The second factor involved religion. The immigration of many settlers had been motivated by the desire to escape the authorized and established official churches of Britain and elsewhere in Europe.
  - In the period from 1700 to 1750, many colonists were swept by a spirit of religious revival that later was called the Great Awakening, emphasizing individual conversion and piety as a way of life above fine points of doctrine and church authorities.

- This also had a political dimension: It was a call to self-administration in spiritual life. John Adams, one of the crafters of the American project, later made a bold claim: “The Revolution was in the minds and hearts of the people; a change in their religious sentiments of their duties and obligations.”
- The Great Awakening led to the third key factor, the growth of education and general literacy in the colonies: To read the Bible and to receive its authority demanded schooling, even on the frontier. It was this learning that would make colonists receptive to political debate in a new—and modern—way.

### **The Seven Years’ War**

- The immediate cause of the colonial revolt lay to a great extent in the Seven Years’ War of 1756–1763. This was a world war that pitted Great Britain against France, each nation with its respective allies.
  - The war started near the spot that would become Pittsburgh, Pennsylvania. British forces and the Virginia Regiment, led by a young officer named George Washington, clashed with French forces, contending for the key strategic location on the Ohio River.
  - The war then spread globally to the colonial possessions of France and Britain, from West Africa to Newfoundland. It concluded in 1763 with a great British victory. France was humiliated, losing most of its overseas empire. Britain at a stroke gained territories in India, Canada, and Florida.
- Britain’s world empire now loomed internationally, with a power not seen since the days of the Roman Empire. Yet the expenses of this war would lead to crisis; victorious Britain would have to pay for its success.
- On a personal level, the victory dashed the hopes of George Washington to become a British officer. He was an imposing young man, dignified and controlled yet with a driving ambition. He was from the gentry of Virginia, but this mattered little to the nobles in

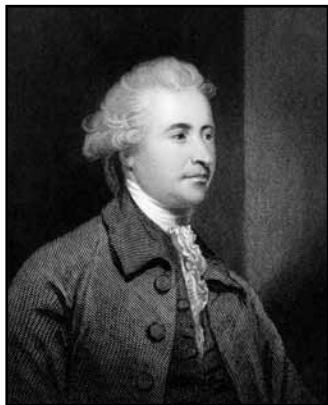
London, to whom Washington and other Americans were merely rustic bumpkins from the provinces.

### **“Taxation without Representation”**

- The results of the Seven Years’ War were felt keenly in the British North American colonies. The colonists felt more secure with the removal of the French threat, but the expense of the war prompted the British government to launch attempts at fiscal reorganization that provoked the colonists.
  - Britain’s debt had doubled from 1756 to 1764, not least because of the expense of maintaining security in the colonies. From the perspective of British imperial administrators, why could the American colonies not be more like India, where the British East India Company was turning a profit?
  - In 1765, a new tax called the Stamp Act was imposed by Parliament on the American colonies. All printed materials would need to bear a stamp showing that the fee had been paid. This measure obviously antagonized the printers and writers of the colonies—dangerous enemies to make—but also galvanized many colonials who objected to “taxation without representation.”
  - Colonial merchants organized boycotts of British goods to protest the Stamp Act and additional taxes on sugar and other imports. Protestors organized themselves into secret groups called Sons of Liberty to coordinate opposition and demonstrations.
- The stamp tax was never effectively collected and was repealed, but Parliament insisted that it had the right to legislate for the colonies. British troops were sent to the colonies in increasing numbers, resulting in such clashes as the 1770 Boston Massacre.
- A key moment in the unfolding process involved tea and the British East India Company.
  - The British East India Company was experiencing a downturn. To help it, Parliament passed the Tea Act in 1773, which

granted the company a monopoly on the sale of tea in the American colonies. A small tax would be imposed on the tea, but it would still be cheaper than the smuggled tea that many Americans drank at the time.

- Ironically, the colonists focused more on the imposition of a new direct tax on which they had not been consulted and on the institution of a trade monopoly than on the price of tea.
- Colonial threats meant that the great East Indiaman ships that arrived in American ports were not allowed to unload their tea chests, except in Boston, where the governor insisted that they do so.
- On the night of December 16, 1773, some 130 Sons of Liberty, dressed as Mohawk warriors, boarded three ships and threw the tea into the harbor. No one was killed or injured, but this was clearly a call to wider revolt.
- Even at this point, few colonists were driving for independence. Most wanted restoration of their rights as Englishmen, and a number of leading British political figures, including Edmund Burke, sympathized with them.
- But at this juncture, British authorities took a hard line. When British troops were sent to disarm colonial volunteer militias, fighting broke out. The ensuing American Revolutionary War lasted eight years, from 1775 to 1783.



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**The Irish-born parliamentarian Edmund Burke spoke out against imperial policies that antagonized loyal subjects in America.**

## The Power of Print

- Still, it took 15 months before the Americans issued a Declaration of Independence, spurred on by the power of print. In January 1776, the British political agitator Thomas Paine published a pamphlet, *Common Sense*, that changed history. In it, Paine argued for American nationhood and for independence from the British Empire.
- In July 1776, a Declaration of Independence, authored by Thomas Jefferson, was presented to, and accepted by, the Continental Congress in Philadelphia. It was an address to the world, from “a decent respect to the opinions of mankind,” to explain the reasons for the break.
- The text cited self-evident truths of equality and inalienable rights to life, liberty, and the pursuit of happiness. Governments, it continued, are established by the consent of the governed to secure these rights, and when they are violated, the right of the people is to institute new government.
- This reasoning derived from a key figure of the English Enlightenment, John Locke. In his 1690 *Two Treatises of Government*, Locke wrote of a political contract between a people and the state, but a conditional one. This relation had to respect the innate and natural rights of individuals; otherwise, there was a right to rebel. And that time had come.

## The Course of the War

- The war dragged on as General Washington’s forces contended against the British. Washington kept the army together by the tremendous force of his personality.
- Europeans who were enthusiastic for the American cause joined the effort. Among their number was the marquis de Lafayette, who arrived in America in June 1777. After the American victory at the Battle of Saratoga in 1777, Lafayette assisted in arranging more aid



from France, which now saw an opportunity to be avenged for the Seven Years' War.

- This aid was decisive. French and American forces trapped the British at Yorktown in 1781. The war was finally concluded with the Treaty of Paris in 1783.

### **A Perilous Moment in History**

- Even though the war was won, 1783 was a perilous moment in American history. American officers were embittered at not receiving their back pay from Congress, and some began to plot to seize control. Washington traveled to the camp of the officers in Newburgh, New York, and passionately counseled them not to revolt.
- An even more forceful proof of Washington's character followed. Faced with the daunting task of building a new nation, some in America hoped that the general would become king. Instead, in December 1783, Washington went before Congress and resigned his military duties, declining to take power. His self-denial in the name of his country was a great gift to the young nation.
- The United States that emerged from the conflict was, however, a weakly structured union of sovereign states. It was bound together only by the weak Articles of Confederation, without a federal executive or judiciary, without the power to tax, and unable to keep order, as was made clear by the revolt known as Shays's Rebellion. As these flaws became more evident, many felt the need for a new model.
- A new Constitution was crafted in 1787 in Philadelphia. The Constitutional Convention was supposed to discuss reforms to the Articles of Confederation but rose to the greater task of building a new framework.
- The Constitution was ratified by 1789. It established a federal system, with power separated among three branches of government.

It featured checks and balances and separation of powers, not centralization of authority.

- A Bill of Rights added to the Constitution further enumerated protections due to the individual. This was the product of vigorous debate between the Federalists and Anti-Federalists. The possibility of amendments to the text gave crucial flexibility for the future.
- The American revolutionary settlement was beset with contradictions, including the continuation of slavery and refusal to grant the franchise to women. Yet the Constitution was remarkable for its time and endures today as the first such document adopted by a large state and the oldest written constitution still in operation in the world.

### Suggested Reading

Himmelfarb, *The Roads to Modernity*.

Winik, *The Great Upheaval*.

### Questions to Consider

1. Why do you think the American Republic has endured?
2. Given that republics were seen as weak and temporary, why do you think the Founders wished for a republic?

# 1789—The French Revolution

## Lecture 10

The French Revolution began in 1789 with high hopes for restructuring the state but descended into a Reign of Terror. When the violence finally burned itself out, a dictator such as the world had never seen before took power: Napoleon Bonaparte, who turned what had been the French Republic into the French Empire and then set out to conquer Europe. How had a movement for liberation from the *ancien régime* gone so wrong, producing a trajectory that led to a despotism bloodier than the one that had come before? In this lecture, we will see how the French Revolution diverged radically from the one in America, setting up a different trajectory for political modernity that still resonates today.

### Background to the Revolution

- In the years leading up to the Revolution, France was increasingly caught in a systemic crisis of the state. It was ruled by a monarch, Louis XVI, whose power was, in theory, absolute, but whose state was seizing up and whose society was seething.
- France had been almost constantly at war for more than a century, and military expenses consumed three-quarters of the budget. The royal debt had doubled in the reign of Louis XVI, yet the aristocracy paid no taxes; that burden fell on the lower classes.
- At the same time, society was in ferment, with authority subject to ever more corrosive criticism. A popular underground press produced a torrent of pamphlets denouncing the king and the profligacy of his court at a time of economic crisis. Anger especially focused on the queen, Marie-Antoinette, denounced as a foreigner and a hypocrite.
- In desperation, King Louis gathered an Estates-General in 1789 to approve new taxation. This representative body had not met since 1614 but now developed a momentum of its own, with

representatives of the common orders gaining confidence and making new demands. When nonaristocratic representatives resolved to write a constitution, Louis ordered that their meeting hall should be locked.

- When the delegates discovered the lockout, they went to a nearby indoor tennis court, and there—angry at the clumsy royal gesture—they took what came to be called the Tennis Court Oath. They vowed that they would remain together until they had written a new constitution, whether the king approved or not. This was a pivotal moment in the larger turning point of the French Revolution.
- The king's weakness was provocative. The National Assembly challenged traditional royal authority outright, and the king gave in. All was in flux, and all seemed possible. Yet these days of revolutionary change were also haunted by fear. When rumors spread that the king was massing troops, a mob in Paris stormed the Bastille fortress on July 14, 1789, bringing royal authority down with it.

### **Declaration of the Rights of Man and of the Citizen**

- On August 4, 1789, the National Assembly, in one memorable night, abolished feudalism and the privileges of the *ancien régime*. On August 26, it issued the Declaration of the Rights of Man and of the Citizen, modeled on the American Declaration of Independence and Bill of Rights.
- But there were contrasts in the documents about which ideals were emphasized, which would take pride of place in the new authority under construction.
  - The Enlightenment inspiration that informed the French Revolution came most from a contributor to Diderot's *Encyclopédie*, the *philosophe* Jean-Jacques Rousseau.
  - In his 1762 book, *The Social Contract*, Rousseau argued for popular sovereignty, embodied in the “general will,” in which individuals find their highest fulfillment and are subsumed.

Thus, the French Declaration of Rights announced, “Law is the expression of the general will.”

- The new state was being established, and the marquis de Lafayette, as a prominent figure, was put in charge of the National Guard. But shortly, he was to experience worrying doubts.

### **Progress of the Revolution**

- In October, the Paris mob was on the move again, marching to nearby Versailles and surrounding the royal family. Lafayette arrived with troops, hoping to shield the king and his family, but the mob took the family hostage and brought them to Paris.
- The revolutionaries also turned on the church. This policy was another significant contrast to what had taken place in America, where free exercise of religion was enshrined in the Constitution.
  - In France, at a stroke, all church property in land was taken away and priests were subordinated to the state as civil servants.
  - The effects of this nationalization were explosive. Because most clerics refused the measure, a civil war threatened. The state was centralizing its authority, perhaps unconsciously imitating the royal absolutism it had replaced.
- Internationally, opinion on the French Revolution was mixed. Some praised it as a new age of mankind, and some American revolutionaries were proud that the movement seemed to be following their example. But Edmund Burke had darker premonitions; he predicted that the revolution would end in cataclysmic disorder and that the ensuing anarchy would be followed by a dictatorship.
- On the night of June 20, 1791, the French royal family made a break, but the king was recognized the next day, and the family arrested and returned to Paris. A new constitution was enacted, creating a constitutional monarchy, but unrest was accelerating fast.

- Revolutionary France went to war with the monarchies of Europe in 1792, and when fear grew that foreign armies might win and restore the *ancien régime*, the Paris mob stormed the Tuileries Palace, on August 10, 1792.
- In September, France was declared a republic, and the monarchy was abolished. This was also the month of the September Massacres, when prisoners held in overcrowded jails, especially priests, were killed, forced to run a gauntlet of men wielding swords, bayonets, knives, and axes.

### The Reign of Terror

- After September, the violence increased even more and became systematic in what came to be called the Reign of Terror, lasting 10 months, from 1793 to 1794.
- The revolutionaries executed the king and queen and established a Committee of Public Safety to rule France, dominated by Maximilien Robespierre. Under his stern guidance, the committee advocated “revolutionary terror,” defined as prompt, total justice to produce a “republic of virtue.” Thousands were sent to their deaths on the guillotine.
  - In areas that revolted against the revolutionaries, such as the city of Lyon or the Vendée region, the mass murder was ruthless and energetic, on a scale far greater than the individual guillotine.
  - Even revolutionaries were suspected. Lafayette, increasingly aware that he was distrusted by the Committee of Public Safety, escaped the country. Thomas Paine was arrested by the



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**The guillotine was praised as humane, the embodiment of Enlightenment utility; the condemned supposedly felt only a rush of air on the neck and then nothing.**

state, perhaps because he had pleaded that the king should be exiled, not executed.

- All this was in the service of obliterating the old regime and creating a new, purified society.
- At long last, the terror burned itself out. Robespierre was betrayed by associates and executed in 1794. The revolution itself was ended in 1799, when a young general who posed as the defender of the new regime declared his own military dictatorship.

### **The Rise of Bonaparte**

- Napoleon Bonaparte was of obscure Corsican origins, but the revolution and its wars allowed him to rise as a military and political genius. Concentrating power in his own hands, Napoleon crowned himself emperor of the French in 1804.
- The symbolism of this act, of putting the crown on his own head, was vast. In earlier ages, when monarchs claimed to rule by divine right, a pope would have crowned the emperor. But at this ceremony, the pope was relegated to the sidelines. Napoleon was announcing his own power.
- Unlike George Washington, who was marked by restraint, Napoleon's ego and military ambition were total. Moreover, he was able to exploit an innovation of the French revolutionaries: the *levée en masse*. If sovereignty belonged to the people or the nation, then everyone must be involved in war, whether soldier or civilian.
- The French armies that were sent into the field were huge (the largest ever seen in Europe) and actively motivated by patriotic ideology, not by passive obedience to kings or princes. In these new armies, promotion was based on merit, not aristocratic background, allowing men of genius, such as Napoleon, to rise through the ranks.
- The French revolutionaries invaded neighboring kingdoms to spread their ideas and claimed they came as liberators. But these

conquests, like the ones of Napoleon that followed, touched off a chain reaction of nationalist resistance against the French.

- In the German lands, Spain, and Russia, nationalist volunteers rallied to fight guerrilla warfare against their supposed liberators. The wars of nations were bloodier than the wars of kings. With the impact of ideology, war was becoming more total, involving entire societies, not just professional soldiers.
- Napoleon's wars cost some six million lives, until he was finally defeated at Waterloo in 1815 by the duke of Wellington.

### **Revolutions as Turning Points**

- Both the American and the French revolutions offered alluring ideas, as well as cautionary lessons and contrasts: a model that sought balance through separation of powers versus a vigorous impulse to centralize and concentrate authority.
- Both revolutions also shaped modern politics. They both challenged monarchies, and their claims to establish the sovereignty of the people were a milestone, opening the door to a new kind of ideological politics.
  - Whereas absolute kings had claimed authority from God, almost all regimes since these revolutions have tried to argue that they represent the people. Even tyrannies have to make this claim.
  - As a result of the emphasis on the people as the source of authority and sovereignty, entire modern ideologies came into being, whose proponents argued that their belief systems served the people best. It has been said that ideologies in the modern age take the place of religious worldviews of the past, offering comprehensive explanations and giving meaning to life.
- But the French Revolution also established a recurring tragic pattern of radical revolt leading to anarchy and tyranny. This was



the pattern in the Russian Revolution of 1917 and in Germany between the two World Wars.

- A more immediate impact of the French revolutionary ideas came in the New World, with the great slave uprising in Haiti in 1791, led by Toussaint Louverture, who claimed for his people the rights of man and citizen. Challenged to live up to its ideals, the National Assembly in Paris abolished slavery in all French territory in 1794.

### Suggested Reading

Himmelfarb, *The Roads to Modernity*.

Winik, *The Great Upheaval*.

### Questions to Consider

1. What factors made the French Revolution as violent as it proved to be?
2. Was Napoleon's seizure of power inevitable? If not, what other scenarios can you imagine for the ending of the French Revolution?

# 1838—The British Slavery Abolition Act

## Lecture 11

Other turning points we have examined so far involved scientific change, geographic discovery, technological innovation, and political transformation. But the abolition of slavery in the British Empire was a different kind of turning point: a change of heart. For centuries before 1838, many people saw slavery not as an abomination and a crime but as a seemingly permanent feature of human society. The change came through a movement of quite ordinary people that began in the late 18<sup>th</sup> century. It did not succeed quickly or all at once. Rather, success came gradually, pushed by social protest over several lifetimes. This was a turning point in the dawning recognition of human rights, universal to us all.

### Slavery in Premodern and Modern Times

- Before the modern age, slavery, in many different forms and under different names, had been an almost universal phenomenon. In classical times, even Aristotle divided humanity into two great categories, slave and free. The monotheistic religions of Judaism, Christianity, and Islam, even as they preached a new religious message, did not call for the abolition of this institution.
- In medieval Europe, traffic in human beings was practiced in the growing towns. Often, these were young men and women from Eastern Europe. From 1200 to 1500, the Italian cities of Venice and Genoa did a brisk trade in slaves from the Caucasus mountain region through the Black Sea, sold in the slave markets of Cairo.
- When Constantinople fell, remaining Christians were sold into slavery by the Turkish conquerors, and Christian Europe took Muslims as slaves in turn. Later in the Middle Ages, slavery as such mostly disappeared in northwestern Europe, but serfs and peasants were subject to conditions of harsh servitude. This pattern lingered for centuries more in Eastern Europe, where serfs were bought and sold as unfree labor.

- Slavery came to the fore again with the expansion of colonial empires, especially after the encounter with the American continents in the years following 1492.
- When native Americans were decimated by the diseases of the Columbian exchange, the Spanish brought slaves from Africa to Hispaniola around 1501, and this set a new pattern of Atlantic slavery: Slaves from Africa were forcibly taken to the plantations of the Americas. This pattern endured for 350 years on the vast plantations in the New World.
- The numbers here are so vast as to defy comprehension. From 1500 to 1820, it is estimated that up to 15 million Africans were torn from their homes and shipped across the Atlantic. Of that number, an estimated 4 to 6 million slaves did not survive the crossing.

### **The Atlantic Slave Trade**

- In the 1600s, the Portuguese dominated the slave trade, but other competitors moved in. The Dutch dominated for a while and then the British. As we saw in our lecture on the great trading companies, these were large ventures with multiple investors.
- The pattern of shipping undertaken by these companies came to be called the “triangle trade.” Slave ships carried goods from England and Europe to West Africa; loaded up there with human cargo; moved across the Atlantic, disgorging those who survived; loaded up again with sugar, tobacco, and coffee; and sailed for northwestern Europe to begin the triangular cycle again.
- European ports grew rich on slavery, and a vast economy was built around the trade, including those who made the goods that were traded for human beings, those who built and outfitted ships, those who forged shackles for the prisoners, and those who resold the colonial commodities that came back from the Americas.
- The slave ships headed to the coasts of West Africa, from what is Senegal to Nigeria. Slaves were usually brought to the coast by

African middlemen. These prisoners were often captives of wars or had been reduced to slavery because of their inability to pay debts.

- The ships waited for weeks to be fully loaded. Then began the horrors of the Atlantic crossing. Aboard crowded ships, slaves were given only about four square feet of space. Chained together to hamper revolt, it was hard for the Africans to move about, and the decks were marked by horrible conditions that bred disease.
- The trip typically took a month from Africa to Brazil or two months from Africa to the Caribbean or North America. On average, 15 percent of the slaves died en route, often many more. Slave ship crews also experienced high mortality rates due to yellow fever and malaria. Some desperate slaves tried to resist; more than 300 mutinies took place on the slave ships.
- Those who survived were put to work in the plantations of the colonies, especially the sugar plantations. Almost half of all Africans shipped across the Atlantic were sent to the Caribbean, Barbados, Jamaica, or Saint-Domingue, now known as Haiti. Of the rest of the slave trade, about 40 percent of the slaves were shipped to Brazil; North America received some 5 percent.

### **Mobilization against Slavery**

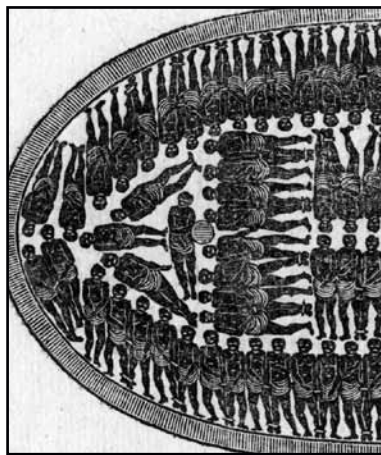
- Up to this point, there had been isolated criticisms of slavery among Enlightenment thinkers, but this criticism had been inconsistent. It was religion that finally produced the beginnings of a mass mobilization against slavery.
- In particular, this movement involved the Quakers. Members of this group believed in the fundamental equality of all people because of the immediate relationship each person could have with the divine.
- From these beliefs, the Quakers, both in England and in the American colonies, spoke out against slavery. As early as 1688, Quakers in Germantown, Pennsylvania, condemned slavery and the

slave trade. By the 1760s, Quakers in Britain and America refused to accept slave traders into their communities. In Philadelphia in 1775, they founded the world's first antislavery society.

- Around the same time, in England, Quakers cooperated with Evangelicals within the Church of England, Methodists, and Baptists to work against the slave trade. In 1772, a legal case had prohibited slavery in the British Isles, so there were no slaves in Britain, but these activists were not content.
- The result of this movement was a powerful partnership that included Thomas Clarkson, a tireless organizer; the politician William Wilberforce in Parliament; and the African Olaudah Equiano, a former slave who had bought his freedom and published a best-selling autobiography.
- The group decided to concentrate first on the slave trade rather than working on banning slavery, even though that goal was what almost all of them ultimately sought. Slavery itself seemed too socially and economically entrenched to be overthrown all at once, so their hope was that ending the trade would lead to the gradual extinction of the practice as a whole.
- Clarkson traveled the country, collecting information and gathering witnesses to testify in parliamentary investigations. The movement's political voice was Wilberforce, who advanced the legal cause in Parliament.
- Because many of the members of the movement were Quakers, and in turn, many of the Quakers were merchants, the movement was very businesslike—efficient and inventive in its tactics. Activists printed masses of pamphlets and pioneered the use of fundraising letters. Women also played a role in the movement, speaking at public meetings, gathering signatures in petition drives, and organizing a boycott of sugar in 1791.

## Ending the Slave Trade

- Soon, society was inflamed with the cause. The message appeared in debates, newspapers, and even poems. In Parliament, Wilberforce pushed the cause, and parliamentary committees investigated the details of the slave trade in hearings.
- In Parliament, proslavery forces, organized as the West Indian lobby, advanced ludicrous arguments in favor of the institution. Proposed bills banning the slave trade failed repeatedly.



© Marmaduke Percy/British Museum/Wikimedia Commons/Public Domain.

**A shocking diagram of the interior of the Brookes, a slave ship owned by a Liverpool family, actually showed fewer slaves than were sometimes transported and remains one of the most reproduced political images ever.**

- Finally, in 1807, Parliament passed a ban, declaring the slave trade a form of piracy. The legislation damaged the British economy, but the moral argument trumped financial considerations.
- Soon after, the United States, the Netherlands, and France also prohibited the importation of slaves, but it would take another quarter century until the goal of freeing slaves was achieved. In the meantime, the British government took action. In the decades after 1807, even during the war against Napoleon, royal navy ships patrolled slave ship routes to stop the trade.

## Abolition at Last

- The British movement against slavery slowed down in the next decades, running out of energy and content to be “gradualist” in its hopes, until a new generation of women activists rose up to reenergize the movement and demand immediate abolition of slavery everywhere in the British Empire.

- Slave uprisings in Haiti and Jamaica helped convince many that emancipation had to come.
  - In 1833, Parliament passed legislation freeing some 800,000 slaves in the British Empire, mainly in the Caribbean islands. That emancipation came in stages, and owners were promised compensation, even though ex-slaves got none.
  - At long last, on August 1, 1838, the slaves were finally free. At the ground level, even if economic exploitation continued, experiencing the moral difference in status from slave to free was profound.
  - Of course, this did not end the story or the crime of slavery all at once. Ex-slaves continued to labor in hard conditions but at least without the old shackles. And slavery continued elsewhere in the Americas.
- American abolitionists, including William Lloyd Garrison and the former slave Frederick Douglass, traveled to Britain and cooperated in a transatlantic movement for abolition. But it would take the U.S. Civil War, which exacted some 750,000 lives, to free the slaves in the United States.
- The last open slave market in the Americas, in Havana, Cuba, was shut down in 1869. Cuba stopped exporting slaves in 1870, as a result of naval interdiction by the United States and Britain, and abolished slavery in 1886. Finally, in 1888, slavery was abolished in Brazil.
- Unfortunately, it is not possible to conclude there. Slavery continues today in many forms of involuntary labor, on many continents, and under new names. It is estimated that more than 20 million people are in servitude today worldwide; the anguish continues.
- But in the fight against this injustice, the legal abolition of the slave trade and slavery was a powerful turning point. That August night in 1838 brought great joy and comfort to the liberated Africans and

left a lasting legacy. It created a new model for social mobilization, with key tactics and tools invented by the abolitionists, which are used by movements spearheaded by ordinary people even today for countless causes.

### Suggested Reading

Bernstein, *A Splendid Exchange*.

Hochschild, *Bury the Chains*.

### Questions to Consider

1. What later social movements (perhaps even of the present day) do you see as having adopted tactics similar to those of the abolitionist movement?
2. What was unique about the role of women in the movement to abolish slavery?



# 1839—The Opium War in China

## Lecture 12

When we hear of a drug war, we usually think of a government fighting against smugglers or dealers in drugs, but can you imagine a world power fighting a war against another government in order to open it to the drug trade? That's what happened in the Opium War of 1839, when British forces assaulted the Chinese Empire, imposing the drug trade from outside. China, like so many other countries around the world, now confronted the full power of European imperialism. This was a traumatic reversal for China, which could no longer consider itself supreme or even sovereign. But it also proved to be a world turning point, revealing the destructive power of imperialism as an international force.

### Tea Trade with China

- Tea first arrived in Britain from China around 1645. Initially, it was a luxury that only the richest in the royal court could afford, but by 1750, it was popular among the middle classes, and by 1800, it was a craze that extended throughout society.
- From 1700, the increasingly globalized economy was based on such commodities as sugar, cotton, coffee, and tea. By trading in large quantities of these, the British East India Company (EIC) had outcompeted its earlier rival, the Dutch East India Company and its spice monopolies.
- The EIC made huge profits by transporting large quantities of tea, and the royal treasury loved the trade, imposing a 100 percent import duty on tea. In the 1790s, the EIC was shipping 23 million pounds of tea every year to Britain from China.
- The EIC traded with China for tea through one open trading port, Canton. Foreign merchants were not allowed permanent residence but confined to the trading station, and they had to leave once the five-month trading season was completed, unable to return until the

following year This policy spoke volumes about the structure of China under the Qing dynasty, a mighty empire of more than 300 million people.

- From 1644, the Manchus from Manchuria had conquered China, displacing the Ming dynasty. But after conquering China, the Manchus found that China conquered them—they were absorbed into Chinese civilization.
- Under their dynamic rule, China expanded, adding Turkistan, Burma, and Tibet and moving into Nepal. The Manchu Qing dynasty limited foreign trade to the Portuguese station at Macau and to Canton, today known as Guangzhou. As in earlier ages, trade was understood as tribute from the far-flung parts of the less civilized world. As the EIC sought to trade with China to buy tea, a major problem arose. The British (and other Europeans) had little that China wanted. British products that were sent to impress the Chinese, such as carriages, cannon, and Wedgwood pottery, were rejected by the Manchu emperor. The EIC had no choice but to pay for tea with silver.
- Then it dawned on officials of the EIC that the company could supply one product that was in demand in China: opium, grown in the territories the EIC ruled in Bengal.

### **The Opium Trade in China**

- The opium poppy had long been known in the classical world and was used as a remedy against pain and fever. If abused, it brought hallucinations and respiratory failure.
- Opium had also been known in China since the 8<sup>th</sup> century A.D. Unlike in Europe, however, by the 19<sup>th</sup> century, opium users in China were smoking it rather than taking it in smaller doses.
- The emperor declared the opium trade illegal in 1729, 1796, 1799, and again in 1800. Disregarding Chinese laws, the EIC, battling for its existence against calls to end royal monopolies, increased its trade in opium. On the China coast, the EIC sold opium to private



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**Clipper ships carried both tea and opium and were built for speed, with narrow hulls and huge sails.**

dealers, who then sold it to local smugglers. American merchants were involved, as well.

- Eventually, the EIC sent new steamboats on its shipping routes from India, adding the power of the Industrial Revolution. On the receiving end, it is estimated that in China, half of men and a quarter of women were users of opium, although not all were addicted.
- As a result, the balance of trade with China reversed. Instead of silver flooding into China to pay for tea and silks, by the 1830s, Chinese silver was flooding out to pay for opium. At this point, in the late 1830s, more than 30,000 chests were brought in, each containing some 150 pounds of opium. This was a different kind of triangular trade, encompassing Britain, India, and China.

### **Call for Dynastic Reform**

- The Chinese Empire, apparently monolithic and self-sufficient, was internally torn by tensions between the Manchu ruling class and

the masses of Chinese subjects, repeated revolts, and a governing apparatus beset with inefficiencies and corrupt officials.

- A reform movement touched off a crisis. A group of Confucian scholars, calling themselves the Spring Purification Circle, argued that renewal was needed, lest the Qing lose the mandate of heaven. Increasingly, opium seemed to be a symbol of things going wrong. It sapped the energy of the state, instilled lassitude and laziness, and drained away the vigor of a virtuous ruling elite.
- Emperor Daoguang, who had been an opium smoker himself, now acted. In 1839, he put Commissioner Lin Zexu in charge of Canton, where the Chinese traded with foreigners.
  - Lin was a follower of the Spring Purification Circle and had a reputation for competence and dynamism.
  - He announced a simple plan for fighting opium: execute the dealers and give users a one-year suspended death sentence so that they could kick the habit. If they did not, they were to be beheaded.
- Next, Commissioner Lin demanded that British merchants turn over their opium stores to him. But if these were confiscated, the dealers would be ruined.
  - The British superintendent of trade in Canton was Captain Charles Elliot, a former royal navy officer. He was personally opposed to opium but also charged with protecting British economic interests.
  - Elliot convinced the merchants to give 1,700 tons of opium to Lin, promising that they would be compensated. Lin had the opium destroyed. After more tension with the British mercantile community, Lin cut off their supplies of food and water.
  - Elliot sent British ships with an ultimatum to Lin, and when it was refused, the British ships fired on Chinese war junks.

## Gunboat Diplomacy

- The British government dispatched gunboats to Canton, including the *Nemesis*, the first oceangoing steam warship. Built by the EIC, it was 184 feet long, weighed 660 tons, was powered by two engines, and was heavily armed.
  - The role of the *Nemesis* points toward something dreadful that lay in the future: the destructive power of industrial warfare, to be fully revealed in the coming world wars.
  - The *Nemesis* blasted Chinese coastal forts at the Pearl River and sank Chinese war junks that were about half its size. This was the advent of what we still today call “gunboat diplomacy,” in which technologically advanced firepower deployed by imperial powers would redraw the world map.
- Given the British advance, which eventually captured Shanghai, the emperor dismissed his reformist officials and acknowledged defeat. China signed the Treaty of Nanjing in 1842. The treaty did not mention opium, although the continued trade was the heart of the matter.
  - The treaty opened more “treaty ports” to Britain, allowed British and other merchants to live within Canton rather than being quarantined outside it, and ceded to the British the island of Hong Kong, which became a massive trading and military outpost of the British.
  - Crucially, the treaty also formalized the “extraterritoriality” of these bases: Foreigners were not to be subject to Chinese courts. Instead, they were subject to the jurisdiction of the imperialist powers. Other powers soon gained the same concessions.
  - Adding insult to injury, China was required to pay the costs of the war and to compensate for the opium destroyed by Commissioner Lin.
- To celebrate this victory, a Chinese war junk was brought to Britain for the Great Exhibition of 1851, although not everyone in

Britain was celebrating. Some condemned this war for an immoral trade, and others decried the hypocrisy of celebrating one's own sovereignty while denying that equality to other states.

### **The Second Opium War**

- With the second Opium War, there would soon be more to question and condemn. British officials in the treaty ports had been looking for a pretext to revise the earlier agreements. They found it in the story of a ship named the *Arrow*, which was owned and run by Chinese smugglers and pirates but had been registered as British.
- Even though its registration had lapsed, it still flew the British flag when Chinese authorities seized it in 1856. The British government sent another expeditionary force, joined by a French force, and they quickly occupied Canton.
- The following treaty of 1858 legalized the import of opium, opened 10 more treaty ports, and allowed Europeans, including missionaries, to travel into the interior of China.
- When the emperor tried to back out of the treaty, an Anglo-French expedition battered its way to Beijing in October 1860 and burned the imperial Summer Palace. The Chinese emperor backed down, making further concessions and paying further indemnities to secure peace.

### **Crisis and Humiliation in China**

- This was a time of crisis for China, in which the foreign depredations were but one part. An even greater challenge to the imperial throne came from the Taiping Rebellion, which raged from 1851 to 1864.
- Such crises were shattering to Chinese society and prompted young intellectuals to engage in what they called the “self-strengthening movement.” The problem they would confront was the same as countless others among peoples subjected to imperialism: how to fight back and throw off outside control to achieve sovereignty.

- In 1874, in the wake of an uprising in India, the EIC was finally dissolved, but China's humiliations continued. In 1894, China was defeated by Japan in a war over Korea. When Chinese nationalists rose up against foreigners in the Boxer Rebellion in 1900, an international military force arrived in Beijing and crushed the movement with massive violence.
- The Opium Wars made clear the power of imperialism, especially when reinforced by the Industrial Revolution. By 1914, three-quarters of the globe had been seized by European powers, and the British Empire loomed above them all. These wars, and many others, swelled the self-confidence of European and other imperialist states but disguised for a time the great internal weaknesses of imperialism.
- From the perspective of China and other societies that bore the brunt of the violence, this turning point was psychologically devastating. An earlier sense of superiority and centrality in the world was replaced by a sense of weakness and humiliation, reactions that continue to echo in world politics to this day.

### Suggested Reading

Bernstein, *A Splendid Exchange*.

Lawson, *The East India Company*.

Lovell, *The Opium War*.

Robins, *The Corporation That Changed the World*.

### Questions to Consider

1. Did the Manchu emperors pursue the best policies to combat the opium trade, or should they have done something differently?
2. How could British society, while abolishing the slave trade, countenance these drug wars?

# 1859—Darwin and the *Origin of Species*

## Lecture 13

**A**s a young man, Charles Darwin embarked on a scientific journey that would lead him, over the course of 20 years, to the discovery of the theory of evolution. Although this extended development might not seem a true turning point, Darwin's concepts completely revolutionized how humans saw their relation to the natural world. This lecture illustrates the idea that historical turning points are not always the first or last word! In this case, Darwin was preceded by others who had speculated on evolution, and later thinkers took his concept in different directions. This turning point also underlined two sources of authority that had been growing in importance through the modern period: the authority of science and of progress.

### Early Thinking on Creation and Evolution

- At the start of our course, from the early 1400s, the authoritative word on the natural world and where it came from was Scripture. In the Christian world, this meant the account of creation given in the Bible was understood literally, rather than as a symbolic rendering.
- In this understanding, creation took place once and for all, with species and creatures “fixed,” that is, set in ideal types, and unchanging. But quite a few in the following centuries questioned this account of a fixed creation.
- Some thinkers instead spoke of “transmutation,” the arising of new species. By the 19<sup>th</sup> century, “natural philosophers” began to notice the fossil record, which showed extinctions. The word “dinosaur,” for instance, meaning “great or terrible lizard,” was coined in 1842. It seemed increasingly clear that the world was not fixed but changing.
- The question then arose: How does the world change? A school of so-called “catastrophists” argued that intermittently, the earth is shaken by disruptive events, such as the biblical flood, and these shaped our world. By contrast, other geologists were called



“uniformitarians”; they argued that the world changed slowly, in a uniform manner.

- In Darwin’s Victorian age, society placed great emphasis on progress, and this conviction created a receptiveness to some version of the idea of evolution.

### **The Life of Charles Darwin**

- Darwin was born in 1809. His father was a noted doctor, and his grandfather, Erasmus Darwin, had been a noted natural philosopher. His mother came from the Wedgwood family.
- Darwin trained as a medical student at the University of Edinburgh, but he could not abide the sight of blood. He was then sent to Cambridge to train to be a clergyman. Instead, he became a keen observer of nature.
- A botany professor with whom Darwin had worked recommended him for the position of natural historian on a ship, the *Beagle*, that was headed for a cartographic mission to South America under Captain Robert Fitzroy.
- The trip first took them to Brazil, where Darwin was enchanted by the rain forest. It continued to Argentina and Chile and, in 1835, reached the Galapagos Islands, a volcanic archipelago in the Pacific, now part of Ecuador but in possession of the British at the time.
  - There, Darwin saw astonishing wildlife, including huge tortoises, and overheard an offhand comment made by the British governor that one could guess which island a tortoise was from.
  - Later, replaying the comment in his mind, Darwin realized that the many different finches on the islands must have had common ancestry but had adapted themselves to different ecological niches. The rest of his life would be devoted to thinking through the implications of this idea.

- The naval voyage went on to Tahiti, New Zealand, Australia, around the southern tip of Africa, back to South America, and then to England. When Darwin returned to Britain in 1836, after five years travel, he was a changed man. He had new confidence and returned with thousands of pages of notes and more than 5,000 specimens.
- The book he published about his trip became a great success. His constant, almost obsessive attention to observed detail links him to Leeuwenhoek. Darwin called the trip “the first real training or education of my mind.” He pursued his ideas in a series of notebooks.
- On his return from his voyage, Darwin seemed to retire. He married his cousin, Emma Wedgwood, and they had 10 children. Emma was deeply religious and immensely patient in nursing her husband through his chronically bad health. Darwin professed himself to be an agnostic in religious terms, believing it impossible to know of the existence or nonexistence of divinity, but in spite of this difference, he and his wife remained close and loving.

### “Darwin’s Delay”

- Historians call the next 20 years of his life “Darwin’s delay.” Instead of announcing his theories, Darwin kept quiet. He worked in secret, gathering information to support his theory of natural selection—a vast set of data based on research on barnacles, peas, pigeons, and many other living things.
- By 1844, he had written out an essay with his ideas in largely complete form but still held back from publishing, despite his friends’ urging. Darwin replied to his friends that arguing that species were not fixed but evolved seemed like confessing to murder!
- What finally jolted Darwin into publishing his ideas was competition. He got a letter from a younger scientist, Alfred Russel Wallace, in which Wallace described an idea that was essentially the same as Darwin’s natural selection. Darwin’s friends informed Wallace of the work Darwin had been doing in secret for many years, and with great grace, Wallace conceded that Darwin was

first. After this scare, Darwin cranked out his book in 13 months of nonstop work.

- The *Origin of Species* finally appeared in November of 1859. Its first printing of 1,250 copies sold out on the first day.
  - Darwin laid out his ideas in clear, accessible prose. The key principle is that nature produces more than can survive, and there are variations in traits in populations, which are then selected from, with the unfit destined not to survive. A species is a group of animals that can mate and reproduce.
  - Significantly, Darwin did not make humans the central question or even a special case. In fact, there was only one mention of humans in the book, the cryptic note: “Light will be thrown on the origin of man and his history.”

### **Reaction to Darwin’s Work**

- Like Copernicus, whose theory displaced the earth from the center of the universe, Darwin dislodged man’s status. But Darwin insisted that his worldview actually was richer. He declared, “There is a grandeur in this view of life... from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved.”
- Natural selection did not imply a “teleology,” or internally preordained plan, or the notion that there is a direction to evolution, but Darwin himself seemed ambiguous on this point. He sometimes spoke of “improvement,” “higher forms,” and “favoured races.” In 1869, he accepted an earlier formulation by the philosopher Herbert Spencer and subtitled his core chapter “The Survival of the Fittest.”
- To many people, “fittest” here suggested best. They congratulated themselves on being the end product that millennia of evolution had worked to produce, in the great onward sweep of progress .
- Epic controversy ensued; some eagerly accepted what they understood to be Darwin’s message, while others were scandalized. The scientific theory spread quickly in this literate society with a

mass audience and mass media. Religious figures devoted to a literal reading of Scripture denounced Darwin, while other religious thinkers argued that his message was compatible with divinity.

- Younger scientists rallied to Darwin's theory of evolution, even though not all of them accepted natural selection. Among his champions was the biologist Thomas Huxley, who came to be called "Darwin's bulldog," a role he played for 30 years.
- Over time, Darwin's model of evolution gained wider acceptance, in part because it meshed so well with the Victorian confidence in progress. In 1871, he published *The Descent of Man*, in which he concluded that humans were descended from an ancestor that was also the ancestor of monkeys.



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**Perhaps no age has believed so confidently in progress as the Victorian age, named after the British queen who ruled for most of the 19<sup>th</sup> century, from 1837 until 1901.**

### The Neo-Darwinian Synthesis

- Darwin died in 1882, at the age of 73. In a gesture of honor, he was buried in Westminster Abbey. Darwin's idea of natural selection was only vindicated decades later, as scientists created what is called the "Neo-Darwinian synthesis."
- Unknown to Darwin, while his fame was growing, a priest-scientist in Germany named Father Gregor Mendel researched hybrids in pea plants and followed the transmission of traits, laying the basis for genetics, yet his work remained obscure until around 1900. Then, in the 1920s, experts in population genetics put together Mendelian insights with Darwin.

- The discovery of DNA followed. In 1953, James D. Watson and Francis Crick modeled the double helix. This forms the basis for our understanding of evolution today. In our own time, the sequencing of the human genome in 2003 is opening the way for diagnoses of illness and early preventive care.

## **The Impact of Darwin's Theories**

- Darwin's theories had an impact that continued long after his death and still echo today. His ideas were so provocative that they were taken up by many different thinkers of many different political stripes and orientations, often quite removed from science and veering into politics.
- Objections to Darwinism on religious grounds by biblical literalists have continued, grouped under the heading "creationism." The famous 1925 Scopes "Monkey Trial" in Tennessee saw a schoolteacher convicted for teaching evolution. This confrontation continues into our times.
- Others avidly took up what they understood to be Darwin's message and sought to apply evolution to human society. This was so-called "social Darwinism," and many of its forms would have horrified Darwin.
  - The flip side of evolution's promise of progress was fear of what would happen if natural laws were distorted: "degeneracy" and social decline.
  - The opposite of survival of the fittest was the peril of extinction. To many, the international arena in this age of imperialism looked like a struggle for survival among nations, empires, and races.
  - Some thinkers argued that society should privilege the best human specimens and trample down the weak or poor as unfit. Darwin's own cousin, Francis Galton, invented the term "eugenics," meaning "good birth," to encourage policies

to improve the human population and to discourage the reproduction of those judged less fit.

- Eugenics gained popularity around 1900 and was later put into terrible practice by the Nazis. Ultimately, millions of human lives were lost or destroyed by those who professed an allegedly “scientific” racism.
- Anxieties remain today about what it all means—the brave new world of genetic manipulation and human intervention in such processes as evolution. Consider headlines from our own times about cloning or genetically modified food. The turning point launched by Darwin is one we are still working through today.

### Suggested Reading

Bowler, *Charles Darwin*.

Stott, *Darwin's Ghosts*.

### Questions to Consider

1. Which parts of Darwin's theories were attractive to many in the Victorian age and which were most shocking?
2. If Darwin's ill health in part was due to his deep anxieties about how his work would be received, what might he have feared most in this regard?

# 1869—Binding Continents

## Lecture 14

In May 1869, the last spike was driven into the transcontinental railroad in Utah, connecting the East and West Coasts of North America. In November of that same year, half a world away, an international fleet did something that earlier had been physically impossible, sailing directly from the Mediterranean Sea to the Red Sea along the new Suez Canal in Egypt. These engineering accomplishments accelerated global communication and movement, raised the authority of science and technology to the status earlier held by religious revelation, and reconfigured world political power. This process had begun before and continues in the present, but 1869 was a pivotal year, showcasing the power and authority of technology.

### The Dream of a Canal

- Of the two projects that culminated in 1869, the Suez Canal was started earlier and took longer. From the agreement to build the canal to its completion took 15 years, but it had a long prehistory. The idea of a canal that would cut across Egypt, linking the Mediterranean and Red seas, was very old. Even the ancient Egyptian pharaohs had worked on canal projects, although on a smaller scale.
  - Napoleon, when he invaded Egypt, ordered planning for a great canal to open new routes for French power, but the plan was shelved when an engineer researching the project mistakenly predicted that cutting a channel could lead to epic flooding.
  - A group of French utopian socialists called the Saint-Simonians attempted to interest the Egyptian authorities in a canal project in the 1830s, but their dream of reuniting East and West came to nothing.
- The man who would finally realize the dream was a figure who embodied public relations brilliance, the Frenchman Ferdinand de

Lesseps. In 1854, Lesseps got the new ruler of Egypt, Saʿīd Pasha, to agree to the project.

- A new company was founded to undertake construction, with international investors. It would run the canal for 99 years, collecting fees from shipping. There are echoes here of the age of the great commercial corporations, the British and Dutch East India companies we surveyed in our earlier lectures.
- Lesseps's project could revolutionize world travel and shipping: The route from East Asia to Europe would be shortened, from 11,000 miles around the Cape of Good Hope in southern Africa to only 6,000 miles. It could cut the time to move between Britain and India in half.
- The canal itself had its own turning point in 1864. Before then, the work was done by massive use of human labor. After 1864, giant dredging machines were brought in. Their steam engines put the construction on a new technical basis.
- From the perspective of the Egyptian rulers, the canal project was a gamble. They hoped to use European technology to modernize Egypt and stave off further European influence. Using European know-how to resist the West was an approach that we will see later taken in Japan with great success. But in this case, the gamble failed, and increased foreign influence followed.
- The 100-mile-long canal was at last completed, and a grand opening was orchestrated for November 1869. European nobles arrived in their own yachts to be part of a great ceremonial fleet to sail through the newly opened canal. Hundreds of dignitaries attended the ceremony and heard speeches proclaiming that the two worlds, East and West, had been united in a "great festival for all of humanity."



## **The Scramble for Africa**

- Earlier, the British had been hostile to the canal idea; it would stand between them and India. But once it was built, they could not tolerate any other nation possessing it. When the next Egyptian ruler ran into a financial crisis and needed to sell his shares in the canal company, British Prime Minister Benjamin Disraeli snapped them up in 1875, gaining a controlling bloc of shares in the company.
- It was a great coup, but it set off an imperialist chain reaction. In 1882, Britain took advantage of a coup in Egypt to take over the country. The canal was too precious for Britain to allow any other nation to control it. This “temporary occupation” lasted for four decades.
- Similarly, the British were drawn into conquering Sudan, to the south of Egypt, again from the imperative to hold this key geopolitical juncture. Outraged French leaders reacted by grabbing other territories in Africa, and the “Scramble for Africa” ensued.
  - This was the high imperialism of the 1880s and 1890s: The mostly Western imperialist powers raced to seize the world’s remaining territories as colonies.
  - By 1914, these powers held three-quarters of the world’s land. In 1875, European colonies were less than 10 percent of Africa, but by 1895, they were more than 90 percent.
- In 1898, Anglo-French animosity almost led to the early outbreak of a new world war over the Fashoda crisis, when British and French colonial forces blundered into each other in the wilds of south Sudan. Fortunately, the crisis was resolved peacefully.
- Given the importance that the Suez Canal had in launching high imperialism, there is kind of a perfect symmetry to the fact that the canal later played a role in decolonization in the 20<sup>th</sup> century.
  - In 1956, in the Suez Crisis, an Egyptian nationalist regime nationalized the canal and then faced intervention from Britain, France, and Israel.

- This intervention failed when both the United States and the Soviet Union, although Cold War rivals, insisted that this imperialist intervention stop—and it did. The era of European colonial power and gunboat diplomacy was ending.

## The Transcontinental Railroad

- Six months before the Suez Canal opened, the first transcontinental railroad in the United States was completed. Earlier, an intrepid Yankee bound for California would need to make a six-month-long journey around South America, enduring the rough seas to round Cape Horn. Alternatively, he could cross Panama by land, braving the dangers of tropical diseases, then boarding a ship to head north.
- The uniting of North America by railroad was the dream of a young engineer who did not live to see the project completed. He was Theodore Judah, so set on the vision that he was nicknamed “Crazy Judah.”
- Some contemporaries said that building this railroad would be impossible, but Judah was undaunted and mapped out a route through the formidable Sierra Nevada mountains. He sold the idea to Abraham Lincoln, who signed the Pacific Railway Act in 1862.
- What followed was a race—an economic and engineering competition in earnest—between rival yet cooperating companies. From the west, the Central Pacific Railroad Company worked eastward, while from the Missouri River, the Union Pacific Railroad



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**Lincoln believed that establishing a railway route to California would tie the West more firmly to the Union.**

Company worked westward. The law promised payment for miles of track and gave public land along both sides of the railway to the companies.

- The construction faced huge obstacles: treacherous terrain, heavy snows in the Sierras, and raids by native American tribes to defend their land. Vast numbers of men worked on the railroad, including Civil War veterans from both sides, Irish immigrants, African Americans, and increasingly, Chinese immigrants, who were subjected to dreadful and often fatal mistreatment.
  - The crews worked seven days a week, often 14 hours every day, making their way across the continent. Surveyors worked far ahead, mapping the route. Graders moved behind them to level obstacles and prepare for the laying of rails. Chinese workers were given the dangerous job of handling nitroglycerine to blast barriers. Then, the track layers set the iron road in place.
  - Following the workers were herds of cattle and cooks, as well as dormitories on wheels for sleeping. Unsurprisingly, rough and wild settlements sprang up along the route to cater to the appetites and lusts of the workers.
- A bitter rivalry arose between the two companies, but after much wrangling and an ultimatum from President Grant, they agreed to meet up at Promontory Summit, Utah. A golden spike was driven to unite the two tracks, engraved with the words: “May God continue the unity of our country as this Railroad unites the two Great Oceans of the world.”

### **Changing Perceptions of Space and Time**

- Before the first steam trains of the early 19<sup>th</sup> century were developed in Britain, people were limited to movement as fast as a horse could carry them. The fact that trains accelerated this movement stirred considerable anxieties. Was railroad travel at such speeds healthy or proper? Accidents were not uncommon and could be horrific. But others celebrated the railroad as a vector of civilization and progress.

- Other effects of train travel and changed perceptions of time and space are with us still. One innovation in the United States and other countries was the triumph of “railroad time”—the standardization of what had been inaccurate or varying local timekeeping to conform to the schedules of the trains.
- Physically, the train station became a temple to the power of railroads. Entire cityscapes in modern cities were torn down and rebuilt to make way for the rail lines and their glorious terminus. And for millions worldwide, trains offered the chance of long-distance travel.
- Worldwide, railroads became a key means of binding together space into unities.
  - British India was connected with railroads, funded with British investment, as a way of securing Britain’s hold on the subcontinent. By 1872, India had more than 5,000 miles of track.
  - Other states rushed to build such projects, as well. Russia built the Trans-Siberian Railroad from the 1890s to link its European west with its Asian east. Germany sought to fund and dominate a project for a railroad from Berlin to Baghdad, which made the British anxious and poisoned the international atmosphere leading up to World War I.
- When the U.S. transcontinental railroad was linked up, it was accompanied by a parallel line of telegraph wires for instant communication. Underwater cables also connected the world around this same time; a submarine cable was run from Britain to India in 1865 and from Britain to the United States in 1866.
- These trends of binding the world together inspired a bestseller about the global changes that were taking place: Jules Verne’s adventure *Around the World in Eighty Days*. This feat could now be accomplished, but only two decades earlier, it is estimated that the same trip would have taken 11 months to complete!

- The year 1869 was a pivotal one, connecting the world in new ways. As we saw in earlier lectures, there certainly had been commercial globalization before, drawing the world closer in trade and exchange. This, however, was an astonishing acceleration of communication and movement. It changed how ordinary people perceived the very categories of space and time, and it made heroes of engineers and their technological know-how.

### Suggested Reading

Ambrose, *Nothing Like It in the World*.

Cadbury, *Dreams of Iron and Steel*.

Headrick, *Tools of Empire*.

Jensen, *The American Heritage History of Railroads in America*.

Karabell, *Parting the Desert*.

### Questions to Consider

1. Railroads bound together continents in the 19<sup>th</sup> century, but what takes that role today?
2. If Britain had not come to control the Suez Canal, how might that have changed subsequent history?

# 1893—First Women Voters in New Zealand

## Lecture 15

A prominent badge of the condition of being modern has also been the acceptance of a political and social voice for the individual, whether male or female. Yet for most of human history, half of the human race was mostly excluded from political power and participation. In fact, it was only in 1893 that the first national state, New Zealand, legally recognized women's right to vote. Other countries followed this first step, years and decades later. In this lecture, we trace how women's votes were achieved. In essence, two global trends, the demand for women's political voice and the growth of settler societies, intersected to create this crucial turning point, which spread from New Zealand worldwide.

### Enlightenment Beginnings of the Suffrage Movement

- The international movement for women's votes can be seen as beginning in earnest with the Enlightenment ideas that emphasized individual freedom and personal sovereignty. In spite of this core idea and its universality, few male Enlightenment thinkers championed women's rights, so it would often be the role of remarkable women to argue vigorously for this cause.
- An example was Mary Wollstonecraft in England, who in 1792, published *A Vindication of the Rights of Woman* and has been seen as one of the founders of the feminist movement.
- In 1776, Abigail Adams warned her husband, John Adams, that if "the ladies" were not taken into consideration by the Continental Congress, they would "foment a rebellion."
- Women were active on both sides of the French Revolution. Olympia de Gouges, for instance, was both a royalist and an activist for women's rights. Such active spirits were disappointed by the constitution of 1791, which made women merely "passive citizens."

## **The Suffrage Movement in America**

- The suffrage movement revived in earnest around 1840 in America. Elizabeth Cady Stanton and Lucretia Mott, two American women, had met at the World's Anti-Slavery Convention in London, but they were refused the right to participate in the convention because they were women. The experience galvanized them.
- On their return to the United States, Stanton and Mott helped organize the 1848 Seneca Falls Convention in New York, with 300 participants. The convention adopted a "Declaration of Sentiments," which adapted the original words of the Declaration of Independence for the cause of women's rights.
- In the following decades, Stanton worked with Susan B. Anthony to advance the cause. In 1866, Stanton stood for Congress and received 24 votes out of 12,000. In 1872, Anthony was arrested for voting in the presidential election. Together, these women founded the National Woman Suffrage Association.
- Successes finally came at the local level in the American West. In the Wyoming Territory, women's votes were recognized from 1869. When Wyoming became a state in 1890, its leaders insisted that it enter the Union with women's votes. Other western states also recognized women's right to vote, including Utah, Colorado, and Idaho.

## **The Suffrage Movement in Britain**

- A mass movement for women's votes was also evolving in Britain. A Quaker, Anne Knight, published the first women's suffrage pamphlet in 1847. In 1851, the first suffrage society was founded in Britain. A following generation of women activists founded the Women's Social and Political Union and engaged in dramatic, militant action.
- Led by Christabel Pankhurst, the "suffragettes" as they came to be called, scuffled with police. Two militants smashed the windows of the prime minister's house. In 1912, the suffragettes organized a

campaign of breaking windows, chaining themselves to fences, and setting fire to mailboxes to call attention to their cause. Then, they bombed the house of the Chancellor of the Exchequer. In prison, their hunger strikes gained further publicity and sympathy.

- In 1913, a young activist named Emily Davison attended the famous Epsom Derby horserace. Timing her action exactly, she stepped in front of the horse owned by the British king; she died of her injuries a few days later. Two thousand women activists marched in her funeral procession through the streets of London.
- Anti-suffrage movements arose, as well, in both Britain and the United States. Participants were convinced that allowing women's votes would be a violation of the "natural order" and social cohesion, which they saw as relegating women to an entirely domestic sphere.

### **The Settler Society of New Zealand**

- Off in the South Pacific, New Zealand literally seemed to European imperialists the end of the earth. The original settlers there were the Maori people. Dutch traders encountered these islands in 1642, and eventually, British colonists settled there.
  - Colonial governors sought to balance the needs of incoming settlers with the rights of the Maori.
  - New Zealand was a settler society, like Canada and the United States, where envisioning society in new ways was not only possible but necessary!
- Women's votes were achieved in New Zealand in ways that both resembled and diverged from the more familiar pattern that was later seen in the United States and Britain, where large movements were organized for the struggle. In New Zealand, women achieved the vote after eight years of organizational work and did so much sooner.
- This had much to do with the social context. In this frontier setting, women and women's work were seen as vital to the establishment



of the new society. As a result, women's education took on a prominence and sense of normalcy that were quite unusual for the times elsewhere in the world. By 1893, more than half of the university students in New Zealand were women.

- New Zealand women became famous for their independence and their ability to carve out a new way of life for themselves. Many entered the professions or became educators themselves.

### **The Suffrage Movement in New Zealand**

- The key organizer of the women's movement was Kate Sheppard of Christchurch. Born in Liverpool in 1848 and raised in Scotland, she had emigrated to New Zealand with her family. She was marked by good humor, strength, winning charm, and great reserves of calm determination.
- Sheppard and other women first became active in the temperance movement, working against the abuse of alcohol, another common feature of many settler societies. Inspired by a visiting American temperance activist, New Zealand women founded a national Women's Christian Temperance Union in 1885. This organization was the first in the country led by women for women.
- As they set about drafting a reform program, it occurred to many of the women members of the Temperance Union that the best way of making their voices heard, on this as well as other issues, was to secure what had been denied them before: the right to vote. Kate Sheppard was put in charge of the committee on the franchise, and the struggle ensued.
- The organization borrowed from tactics we already saw pioneered in the abolitionist movement against slavery. The women wrote tracts and published pamphlets, spoke at meetings, and used their informal influence in society. Their public meetings drew women of different classes together. They also used mass petitions to great effect.

- Opposition to women's suffrage also organized at this point. Some of this opposition was sponsored and funded by the alcohol industry and tavern-keepers, who were anxious about the mobilization that had grown out of the temperance cause.
- Interestingly, many New Zealand men, including established political leaders of different backgrounds, supported women's right to vote. Some believed it would advance the fortunes of their particular political party, liberal or conservative.
- On September 8, 1893, the New Zealand Parliament finally enfranchised women over the age of 21, and the franchise became law 11 days later, so that women could vote in the upcoming parliamentary elections. In the election, more than 80 percent of women eligible to vote did so, eagerly taking up the right that they had been so long denied.

### Effects of the Franchise

- This turning point in New Zealand had worldwide effects. When New Zealand women gained the vote, telegrams were sent to women's suffrage movements internationally to share the good news. Later, Sheppard would travel to England, Canada, and the United States, lecturing on how this success had been achieved.
- The heavy voting by women in the parliamentary elections refuted an argument that had been advanced by opponents of women's suffrage: the claim that most women did not want the vote. Many New Zealanders, both men and women, were proud of being identified with this new equal status for women.
- This turning point did not, however, overturn everything at once. In 1893, New Zealand women had won the vote, but the first woman was not elected to Parliament until 40 years later, in 1933.
- Even with the example of New Zealand, elsewhere around the world, women's votes were slow to come. Only four countries enfranchised women before World War I broke out in 1914. First



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**Some opponents of women's suffrage claimed that most women did not want the vote; it was only a loud and clamorous minority that was pressing the demand.**

was New Zealand in 1893, then Australia in 1902, Finland in 1906, and Norway in 1913.

- In many countries, the First World War would have a catalytic effect, transforming world views in a way that the suffrage movement's principled arguments had not been able to do.
- The First World War would be a true total war, in which entire societies mobilized, in which industrial warfare made factory production as important as the movement of soldiers on the battlefield, and in which the lines between the war front and the home front blurred. Women on the home fronts took on new roles, as munitions workers, drivers, and clerical workers.

- This total war made vividly clear women's crucial role on the home front. In many countries, after the role they had played, the vote could no longer be denied them.
- In the United States, women gained the vote in 1920, but elsewhere, the process took longer. French women gained the vote in 1944, and Switzerland only allowed women to vote in federal elections in 1971. In Saudi Arabia, women are still not allowed to vote.
- Even though the completion of this turning point has not been fully reached, its effect has been tremendous. We have examined in our lectures how each of the turning points relates to what is seen as the legitimate and authentic principle of authority, and in this case, the authority of equal rights for women was a historic and profound step, changing how women and men viewed their world.

### Suggested Reading

Fischer, *Fairness and Freedom*.

Grimshaw, *Women's Suffrage in New Zealand*.

### Questions to Consider

1. Why did some settler societies, as in South America, not grant women the vote earlier?
2. Compare the movement for women's suffrage with the movement to abolish the slave trade: What are the main similarities and contrasts?

# 1896—The Invention of Motion Pictures

## Lecture 16

On April 23, 1896, an audience in New York viewed moving pictures for the first time. Movies mirrored reality and, as we'll see in this lecture, could also create their own reality. But how was the invention of moving pictures a true turning point in modern history? It had a major impact on how humans viewed themselves and the world around them. After the invention of polished-metal mirrors in antiquity, the development of motion pictures revolutionized how the living, moving human body and image were regarded. By documenting, creating artistic visions, and delivering persuasive statements, whether aesthetic or political, moving pictures took on an authority and effectiveness that transformed our social and public lives.

### Early Photographs and Moving Pictures

- During the Dutch Golden Age, Johannes Vermeer apparently used optical equipment in his paintings, the so-called “camera obscura” (“dark chamber”).
  - Known since classical times, the camera obscura was an optical device that could be used to project an upside-down image of a scene onto a screen, where it could be traced with perfect perspective and color.
  - The camera obscura was a precursor to photography. By the first half of the 19<sup>th</sup> century, chemical processes were used to fix and duplicate those projected images.
- Movies and cinema were anticipated in the work of the photographer Eadweard Muybridge, who from the 1870s, worked on “motion studies” of animals and people, using a series of exposures to capture and freeze movement.
- Other inventors were also working on systems to capture motion. The Lumière brothers, Louis and Auguste, fused the process of

filming and projecting film in early 1895. In films lasting about a minute, they captured scenes of everyday life and showed them to small audiences in Paris cafes.

- In the United States, Thomas Edison bought and improved a projector created by the inventors Thomas Armat and Charles Francis Jenkins. Edison renamed the projector the Vitascope, and his studio was soon turning out a wide range of short movies that appealed to a broad public.

### The Life of Edison

- Edison is a fascinating and elusive character: a genius without much in the way of formal education, a charismatic but remote man, and an entrepreneur capable of considerable brutality in competition. But above all, Edison was the man who invented the inventor as a cultural ideal.
- Edison was born in Ohio in 1847 and raised in Port Huron, Michigan. As a youth, when he wasn't blowing up his parents' house with chemical experiments, he was reading Thomas Paine's *Age of Reason*, which he later recalled as a decisive moment of enlightenment in his life.
- Edison struggled with deafness that grew worse as he grew older, but he overcame it remarkably. Starting as a telegrapher, he moved on to becoming a fulltime tinkerer with technology. He produced a cascade of inventions, including the electrical vote recorder, mimeograph machine, microphone, and phonograph to record the human voice.
- He also invented an improved stock ticker, improved typewriter, improved telegraph technology, improved telephone, and more. He often used earlier inventions in new ways, innovating on how technology was organized. By the end of his life, he held more than 1,000 patents.

- Most of all, Edison invented the research laboratory. He set up his famous workshop in 1876 in Menlo Park, New Jersey. It came to be called an invention factory, and Edison was nicknamed the “Wizard of Menlo Park.”
- The invention by Edison of the archetype of the genius inventor represents a decisive moment in the arrival of newness as a desirable thing in modernity. Edison sealed the American obsession with technology and technical solutions.
- Under Edison’s direction, films poured forth from the custom-built studio he maintained, including one of kittens boxing and another of a couple kissing. At first, such films were shown not to audiences but to individuals in Kinetoscope parlors or nickelodeons.

### **Early Theaters and Audiences**

- The shift from individual to public viewing opened up an entirely new social sphere, even larger and more inclusive than the print culture that Gutenberg’s printing press had opened. By 1908, there were more than 8,000 nickelodeons in the United States, with millions of people attending every day.
- These early theaters were lively, bustling places, with continuous showings of films and seats often not segregated by class or price, accessible to both poor and wealthy audiences. The formula was escapism, to lose oneself in the new stories told in this new medium.
- Some historians of American immigration see movies as a vital integrating medium for newcomers. This emerging public also affected what films were produced. There was a feedback loop in terms of public taste, as nickelodeon managers listened to what features evoked most enthusiasm and then tried to get more of them.
- Moreover, this revolutionary development was global. Because the films were silent, they were uniquely accessible. If words were needed in some explanatory slide that punctuated the drama,

these could be spliced in using the local language. This was radical accessibility!

- Silent films had to create their own visual vocabulary that would be understood and accepted. Thus, cutting from one scene and then back again and the use of close-ups or “dissolves” as transitions between scenes were all new conventions. An employee of Edison’s, Edwin Porter, established many of these techniques in *The Great Train Robbery* of 1903.
- The man who endowed film with a powerful narrative impulse around this time was Georges Méliès. Without him, the novelty of short features might have faded. But Méliès was entranced by this new medium and used it to tell magical stories.
  - Méliès started showing his own movies in 1896, marked by fantastical images and creativity. He is called the father of special effects.
  - His most famous film is the 1902 *A Trip to the Moon*, in which French astronomers fly to the moon, poke the man in the moon in the eye, and encounter moon creatures before making a spectacular escape back to earth.
- Reportedly, early audiences reacted with shock and confusion to some unfamiliar scenes. It is said that when films showed oncoming trains, audiences scattered or ducked down, screaming. But they quickly came to comprehend the new rules and conventions of this medium.
- It’s important to note that silent films were not really silent. Sometimes, live actors lip-synched offstage, and many theaters had employees who made sound effects or provided musical accompaniment. In Japan, *benshi* were narrators who explained what was going on, speaking the parts and commenting on the film.



## Influences of Movies on Society

- From the very first, movies raised anxieties about morality. People of different classes mingled in some theaters. Unchaperoned youths frequented the movies. Early blockbusters, such as D. W. Griffith's *Birth of a Nation*, had patently racist messages. Edison's film of the kiss was soon followed by much racier fare, and violence in movies was a staple from the first. Concerns about the powerful effects of movies are with us still.
- But films also expanded the mental horizons of the millions who were making them a part of their ordinary lives. The ability to see faraway places and notable people and events revolutionized modern people's view of their world, making it smaller and seemingly more familiar.
- Eventually, the film industry centered on the dream factory of Hollywood, and theaters became veritable temples of cinema. The film industry also created the modern cult of celebrity, a global level of fame unlike anything ever seen before.
- Many comedies poked fun at authority, such as the Keystone Kops series. In 1936, Charlie Chaplin's *Modern Times* was a comic comment on modernity itself, as the "little guy" battled to survive in a technological and often inhuman modern society.
- To meet calls for censorship, in 1922, the studios establish their own controlling office, the Hays Office. Paradoxically, this self-policing meant that a good deal of vice could be put on display as long as it was punished at the end and virtue triumphed.



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**Such early film stars as Mary Pickford, along with Buster Keaton, Bela Lugosi, and Charlie Chaplin, were recognizable to millions of people worldwide.**

## Changes in Technology and Industry

- After three and a half decades of silent films, recorded sound came to the movies, an innovation that was at first met with skepticism. Sound meant rewiring thousands of cinemas and losing the universality and international accessibility of the earlier silent films. Color arrived in the 1930s, the decade of such blockbusters as *Gone with the Wind* and *The Wizard of Oz*.
- The Depression created cravings for escapism. By 1930, 90 million Americans were watching a movie at least once a week. Genres that are still with us today proliferated, including comedy, social dramas, westerns, horror films, action pictures, animation, and science fiction.
- Movies were also powerful in the hands of modern dictatorships as propaganda tools. This use was illustrated by the Soviet and Nazi regimes in turn.
  - When the Bolsheviks took power in the ruins of the Russian Empire in 1917, their aim was to build a new, revolutionary society. Their leader, Vladimir Lenin announced, “Of all the arts, cinema is the most important for us.” Film would convince illiterate masses and spread a revolutionary message. So-called “agitprop” trains toured Russia, showing revolutionary films to peasants and workers.
  - When Stalin came to power, he dictated a new formula that all artists had to follow, “socialist realism,” which commanded artists to depict the perfect society into which the Soviet Union was allegedly evolving.
  - In Germany in the 1930s, the Nazis were keenly aware of the propaganda power of film. The director Leni Riefenstahl used her considerable artistic talents to produce movies celebrating the Nazi vision of a racially united Germany, including the wicked propaganda masterpiece of 1935 *Triumph of the Will* and a record of the Nazi Olympics in Berlin.

- Today, we face another transformation of the movies. The great movie palaces have faded, and films have gone digital. In 2012, people in America watched an estimated 3.4 billion movies online, not together in magnificent movie palaces but individually, recalling the nickelodeon boxes of the earliest days of film.

### Suggested Reading

Baldwin, *Edison*.

Dixon and Foster, *A Short History of Film*.

Ellis and Wexman, *A History of Film*.

### Questions to Consider

1. Do all new technologies involve shocking first impressions, as film did?
2. What film has made the greatest impression on you and why?

# 1903—Kitty Hawk and Powered Flight

## Lecture 17

The moment when two bicycle engineers broke the shackles of earth for the first time must have been exhilarating. Today, we have become so used to the routine of air travel that it is difficult to imagine our way back to an earlier time, to feel the wonder that clung to the very idea! Humans soaring like birds had been declared impossible yet was a permanent fantasy of the human race. The heavens were both alluring and forbidding, the realm of divinity. In this lecture, we'll look at the way in which the development of flight redrew the world and shaped the experience of modernity.

### Flight in Earlier Centuries

- In the 15<sup>th</sup> and 16<sup>th</sup> centuries, the genius Leonardo da Vinci had a lifelong fascination with flight. He mused, "A bird is an instrument working according to mathematical law... which it is within the capacity of man to reproduce."
- Just before the French Revolution, the brothers Joseph and Étienne Montgolfier built the first hot-air balloon and demonstrated their invention for King Louis XVI.
- In Britain, the engineer George Cayley experimented with gliders throughout the first half of the 19<sup>th</sup> century. One of his great advances involved understanding the importance of streamlining.
- Jules Verne based a number of stories on the impulse to fly, using different imagined technologies. His first popular novel was the 1863 *Five Weeks in a Balloon*, and his famous 1873 novel *Around the World in Eighty Days* also featured a balloon journey as part of the global race.

- Experiments with lighter-than-air craft continued, using hydrogen gas to lift the vehicles. In 1900, the German Count von Zeppelin pioneered airships named after himself.
- The German engineer Otto Lilienthal, in the 1890s, further perfected gliders, producing graceful, birdlike forms from which the pilot dangled. One in a long line of aviation fatalities, Lilienthal died in a gliding accident in 1896.

## **The Wright Brothers**

- Wilbur and Orville Wright grew up in Dayton, Ohio. Their father, Milton Wright, was a bishop of the United Brethren Church, and his responsibilities in the ministry meant that he was often away from home. Their mother, Susan, was from a German family of carriage makers. She was adept at mechanical challenges and passed this trait to her sons.



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**The Wright brothers' life work was inspired by a toy helicopter given to them as children by their father.**

- The brothers had little formal schooling but were fired by a love of science. As they grew older, they set up a printing shop and a bicycle shop.
- News of Lilienthal's death in Germany in a glider accident galvanized them. They set about studying all that was known about flight, surveying the work of earlier pioneers. As they did so, they were shocked to discover errors in calculations of air resistance, prompting them to launch their own experiments.
- The brothers built their own wind tunnel for making measurements and arrived at the innovation of "wing warping" to stabilize flight. From 1900, they took their experiments to Kill Devil Hills, a site near Kitty Hawk, North Carolina. The area had sand dunes for soft landings, and the height of the dunes made them ideal for launching. But the environment could be cold and fiercely windy, and during summer, mosquitoes were a terrible plague.
- At Kitty Hawk, using a succession of gliders, the brothers worked out the challenges before them. Ultimately, they created a biplane glider design, with a rudder for steering and forward elevators to ascend or descend. To this, they added a 12-horsepower engine, which drove revolving propellers, essentially wings that spun around to propel flight.
- The Wright brothers had invited locals from miles around to see their experiment on December 17, 1903, but only five people showed up. After tossing a coin to decide who would begin, Orville made the first flight, which lasted 12 seconds. A flight by Wilbur lasted 59 seconds and covered 852 feet.
- Back in Ohio, the brothers continued improving their machine. They received a patent for their plane in 1906 and, later, successfully fought off disputes by competitors. In 1908, Wilbur Wright traveled to Europe to demonstrate the craft.

- In 1909, the Wright brothers founded a company to build and sell planes. Wilbur died in 1912, but Orville lived until 1948, having witnessed revolutionary improvements in his invention.

### **A Craze for Flight**

- The result of the Wright brothers' invention was a flying craze. Huge crowds gathered to witness this amazing spectacle. Contemporaries marveled at what they felt was the dawn of a new age of human history: the "Air Age."
- The American writer Ida Tarbell reflected keenly on her experience of flying for the first time. Wearing a silk hood and goggles, she sat behind the pilot as they took off, accelerating to 50 miles per hour. When she looked down, she declared, "The surprise of it seemed to stun me. Not that I lost consciousness, but I was literally lost in amazement at the suddenness and ease of it."
- Contests, exhibitions, races, and barnstorming stunt shows became all the rage. Nations competed against each other, with the French surging ahead. By 1911, the world records for speed, altitude, and endurance were all held by French pilots. The French founded the first flight training schools and led the world in plane production before the First World War.
- Pilots were idolized as people who had mastered the soulless machines of the 19<sup>th</sup> century.
  - The American Charles Lindbergh, nicknamed the "Lone Eagle," was deified when he made his 1927 solo flight across the Atlantic, covering 3,600 miles from New York to Paris. On his return to New York, he was greeted by 4 million people and a ticker-tape parade. Even a popular dance was named after him, the "lindy hop."
  - The most famous female aviator was Amelia Earhart, the first woman to fly alone across the Atlantic. In 1937, Earhart set out to become the first woman to fly around the world, but her plane was lost in the Pacific, a mystery still unsolved to this day.

- Love of flying also drove Bessie Coleman, the first female African American pilot, who overcame both gender and racial discrimination to earn her pilot's license in France in 1921.
- There was even a word that became popular at this time to suggest how flight was changing what was possible. This word was “air-mindedness,” which suggested a modern willingness to do things in a new way, to explore what flight could do.
- The first major U.S. airlines, including TWA, American Airlines, United Airlines, and Northwest Airlines, originated as carriers of air mail. Later, they branched out to passenger service.
- In 1935, the first transpacific commercial flight took place, the “China Clipper” of Pan American Airlines. The name of this flying boat was intentionally reminiscent of those ships that had carried tea from China in the age of sail.

### **Military Applications of Flight**

- Aviation threatened to upset the Westphalian order of territorial sovereignty launched in 1648. That order had established the authority of rule over land, but who would enforce sovereignty in the skies?
- No sooner had powered flight been invented than it was put to military uses, to rain death from the skies. This was not only the perversity of arms dealers and generals at work. In fact, the Wrights marketed their invention as a formidable tool of war and got the first contract in 1908 from the U.S. Army. An air arms race was on!
- The first use of the airplane in war came in 1911—only eight years after its invention—in the Italian-Turkish war over Libya. World War I saw both the celebrated fighter aces dueling in the skies and the beginnings of strategic bombing.



- More than anything else, air warfare ushered in the reality of total war. This term refers to industrialized warfare not of armies alone but of entire societies and home fronts, in which everyone, including civilians, is a participant and a potential target. Strategic bombing brought that home, terrifying political and military leaders and populations at large.
- Hitler's air force pioneered dive bombers equipped with sirens that wailed as they attacked to terrify those on the ground. In World War II, Nazi terror bombing of Warsaw, Rotterdam, and London was followed by round-the-clock bombing of Germany by Allied air forces and the obliteration of Hamburg and Dresden.
- Incredibly, one man had predicted this development in uncanny ways—the British writer H. G. Wells in his novel *The War in the Air*, published in 1908. The core thesis of the book was that the airplane alters the character of war. Just as war becomes more destructive, it becomes less decisive and more meaningless.

### **Flight in the Modern World**

- Today, flight is a turning point so woven into our lives that many of us take it for granted. It is reported that in 2010, global air passengers topped 5 billion for the first time.
- Yet to fly and arrive hours later on a different continent still has its effects. Being that mobile can broaden your horizons intellectually and produce a different you, a you that would not have existed without human flight.

### **Suggested Reading**

Kennett, *A History of Strategic Bombing*.

Wohl, *A Passion for Wings*.

## Questions to Consider

1. What was the Wright brothers' key to success that led them to triumph where others had failed?
2. Could the militarization of flight have been avoided?

# 1904—The Russo-Japanese War

## Lecture 18

The Russo-Japanese War of 1904–1905 is without a doubt one of the turning points of modern world history, yet it is little remembered today. This war started the process of global decolonization that would last for the rest of the 20<sup>th</sup> century. Fought with new weaponry, it also revealed for the first time the destructiveness of modern industrial war. Finally, it set the stage for the First and Second World Wars. In fact, the Russo-Japanese War did so much to usher in the age of World War I and World War II that some historians have provocatively labeled it “World War Zero,” the vital precursor.

### Japan’s Rise to Imperialism

- The island empire of Japan had largely closed itself off to outsiders and their influence, trade, and ideas after 1638.
  - From their isolation, Japanese leaders looked on with horror at what was happening elsewhere in Asia. In particular, they followed the British Opium Wars against China.
  - They saw European powers regularly and hypocritically infringing on the ideas of national sovereignty and equality of nations in a family of states that had grown out of the 1648 Peace of Westphalia.
- While debating how to avoid being the next victims of imperialism, Japan’s leaders had their hand forced when American ships suddenly appeared off the coast in 1853.
  - The American naval force, led by Commodore Matthew Perry, “opened” Japan to the outside world after 200 years of self-containment.
  - The 1854 Treaty of Kanagawa gave trade concessions. As other European powers made demands, a regime of unequal treaties,

similar to what was in place in China, was set up, humiliating the Japanese.

- A group of Japanese reformers took decisive action that altered what seemed the likely fate of Japan.
  - In 1868, they undertook a coup against the shogun, the warlord who had held true power and had sidelined the emperor for centuries. This event came to be celebrated as the Meiji Restoration.
  - A generation of young Japanese rallied to the 15-year-old emperor Mutsuhito as a symbol of a great national undertaking: to resist outside pressure by adapting Western successes.
- From the new capital of Tokyo, the reformers created an extensive blending of traditional Japanese culture with Western technology and ideas to reach for Great Power status. Schools were established using French models, and a German-style army and British-style navy were developed. A constitution was passed in 1889, and rapid industrial growth occurred.
- Young Japanese were proud of what they saw: a Japanese modernity—not merely wholesale adoption of the West. Ultimately, the point of this movement was to ensure survival in the age of imperialism by enabling the Japanese to become an imperial power themselves.

### Encountering Russia

- In seeking imperial expansion, Japan ran up against its first European rival, Russia. While Britain and France expanded overseas, Russia had expanded eastward into Asia and the Pacific. In 1860, the Russian czar founded Vladivostok on the Pacific. Soon, Russia clashed with Japan in northeast Asia, especially where their interests collided, in Manchuria.
- When Japan won its war against China in 1895, Russia worked actively to rob Japan of the rewards of that victory. Japan had

gained a large payment of an indemnity, the island of Taiwan, and the Liaotung Peninsula in Manchuria. Russia, along with France and Germany, pressured Japan into giving up that Manchurian holding.

- The Japanese were infuriated by the inequality with which their state was being treated in the imperialist competition and even more embittered when Russia pressured China to give it a 25-year lease on the same Liaotung Peninsula and Port Arthur (today Lüshun) as an ice-free naval base.
  - Southern Manchuria became almost a Russian colony, and the Japanese feared that Korea, which they saw as their area of influence, would be Russia's next target.
  - Russian diplomats scorned Japanese suggestions that each recognize the other's claims; thus, Japan signed an alliance with Britain in 1902 and prepared for war.

### **A Strange Conflict**

- As war approached, it was clear that this would be a strange conflict. It would be fought by modern armies, equipped with industrial weapons, but not in Japan or Russia. Rather, it would be fought in northern China and Korea, in the territories of other nations. The Japanese estimated their chances of success at 50/50.
- The war began with a surprise attack on the Russian naval base at Port Arthur. On February 8, 1904, Japan's Admiral Tōgō pounced. Shock and surprise were total, as Japanese torpedoes hit two battleships, and Russian defenders pulled back.
- On the same day, another Japanese naval force attacked Russian positions at the Korean port of Chemulpo (today Inch'ŏn), sank two battleships, and landed a Japanese army. Two days after the dual surprise attacks, Japan declared war.

### **The Course of the War**

- The Japanese army in Korea crossed the Yalu River and advanced into Manchuria. Soon, Port Arthur was under siege. The Japanese

mounted costly frontal assaults against the city, losing 20,000 soldiers in the first attack, but the city surrendered in January 1905.

- From February to March 1905, the Battle of Mukden was fought, which became the largest and longest battle in modern military history to that point. More than half a million men fought for weeks on end. Japanese frontal attacks ground down the Russian forces but at tremendous cost: Japanese casualties numbered 70,000.
- The climax of the war came on May 27, 1905, with the naval engagement at Tsushima. There, Japan's Admiral Tōgō sank the Russian Baltic Fleet in one of the greatest naval victories of all time. The fleets were evenly matched in strength, but the Japanese proved superior, with new British-built ships and better training.

### Reactions to War

- In Korea and China, the war devastated the civilian population; both armies took food and resources and shot locals suspected of spying. The fighting created countless refugees.
- In Japan, the war was greeted with great enthusiasm. Girls wore kimonos printed with battle scenes, and more than 270 films were created about the war as it took place.
- In Russia, news of defeats brought depression and a longing for reform. On January 22, 1905, peaceful petitioners outside the Winter Palace in Saint Petersburg were shot by soldiers of the czar. This sparked the Russian Revolution of 1905, which almost brought down the empire.
  - Mass strikes broke out, illegal trade unions were set up, and unrest flared in the countryside. Civil order and the police melted away. Pogroms against the persecuted Jewish minority took place. News of the unrest leaked to troops in spite of censorship, and the battleship *Potemkin* in the Black Sea mutinied.
  - Russian revolutionaries, such as Lenin, eagerly awaited defeat, hoping it could be turned to a radical revolutionary force.

## The Treaty of Portsmouth

- After the Battle of Tsushima and given the vast costs of the war, both sides were ready for peace.
- A treaty was signed on September 5, 1905, in Portsmouth, New Hampshire. Japan won control over Korea, which became a Japanese colony by 1910. It won Port Arthur and railroads the Russians had built in Manchuria and the southern half of Sakhalin Island. But Russia paid no indemnity, nor did it give up any Russian mainland territory.
- In Japan, the treaty was met with outrage, and there were riots against the peace in the cities.

Protestors were upset that Japan had not won more for its victory and often blamed America for shortchanging Japan. In spite of this, Japan's arrival as a Great Power was obvious to all.



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**President Theodore Roosevelt offered himself as mediator in the peace negotiations following the Battle of Tsushima and won the Nobel Prize for his efforts.**

## Effects of the Turning Point

- The Russo-Japanese War lit the fuse for the longer-term process of decolonization, which has lasted into our own times. This was a body blow to the authority that imperialism had earlier commanded! This first Asian victory against a Great Power had tremendous psychological impact worldwide, inspiring Indian, Indonesian, Vietnamese, Iranian, and Polish nationalists.
  - Japan's victory also undermined racial stereotypes and alleged hierarchies of Western dominance. Some in Europe and America worried about what they called the "yellow peril," the vision of a resurgent Asia that would challenge Western predominance. Others in the West welcomed Japan to the family of imperialist powers.

- Japan's equality with imperialist Great Powers also points to an irony: Japan had defeated an imperialist power and sparked a powerful movement for decolonization, but its real aim was to claim empire for itself. Japan annexed Korea in 1910, split Manchuria off from China in 1931 as a puppet state, and invaded China in 1937. The Great Pacific War of 1937–1945 followed and still has powerful reverberations in the region today.
- The second impact of the war involves the lessons that were learned, which, as it turned out, were all the wrong lessons. Large numbers of military observers from neutral countries were sent to observe this modern industrial war.
  - These observers admired the ferocity and spirit of Japanese frontal attacks as “human bullets” sent against enemy defenses, even against machine guns. The cost had been great, of course—Japan had lost more than 100,000 men in the war—but the observers noted that Japan had won.
  - This was part of a so-called “cult of the offensive,” which argued that not weapons or firepower or equipment was decisive but willpower and morale and fighting spirit. In 1914, this approach was tried out on the western front of the First World War. Direct attacks, even by motivated troops, produced not victory but senseless deaths by the millions.
  - Further, the war created for many Japanese an image of their army and navy as invincible. The military's power in politics led to more imperialism, more war, and the gamble of Pearl Harbor.
- This points to the third great impact of the Russo-Japanese War: It set the stage for two world wars.
  - Defeat in the East turned Russia westward again, toward the Balkans, where the First World War erupted.



- Japan was determined to carve out an empire in East Asia and believed that a decisive blow could win a war in one stroke at the start. It would use this formula at Pearl Harbor in 1941.
- Finally, defeat in 1905 was an omen for Russia of worse tragedies to come. In the 1905 revolution, the Russian Empire had nearly collapsed, and when the First World War hit in 1914, it did. In the vacuum of authority, Lenin and his Bolsheviks established a new kind of state: one that aimed to abolish all other states in the name of a world revolution.

### Suggested Reading

Goto-Jones, *Modern Japan*.

Jukes, *The Russo-Japanese War, 1904–1905*.

Kowner, ed., *The Impact of the Russo-Japanese War*.

Wells and Wilson, eds., *The Russo-Japanese War in Cultural Perspective, 1904–05*.

### Questions to Consider

1. What political lessons did contemporaries draw from Japan's victory?
2. What lessons should have been drawn about the true nature of modern industrial war based on the Russo-Japanese conflict?

# 1928—The Discovery of Penicillin

## Lecture 19

**T**he discovery of penicillin by Alexander Fleming in September of 1928 illustrates the power of serendipity, the phenomenon of finding something valuable while looking for something else. Yet it was not just chance at work here. Fortune favors those who are prepared, and in the case of Dr. Fleming, those who are attentive enough to observe carefully. Further, every discovery takes place in a larger context: Fleming's insight needed to be made practically accessible before it became the turning point that saved millions of lives and transformed medicine. In a real sense, the discovery of penicillin was a turning point within a larger turning point, taking place in the context of the development of germ theory.

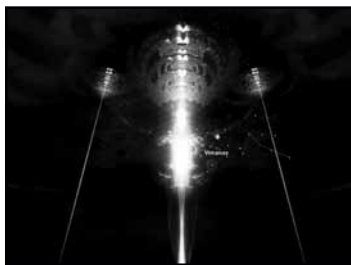
### The Four Humors

- As we saw in a previous lecture, the microscopic investigations of Leeuwenhoek had revealed microorganisms, but the importance of those bacteria for human beings was not understood.
- Over the previous centuries—from the time of the ancient Greeks—health and disease were most often understood in terms of the theory of humors, which postulated that four fluids operated within human beings: blood, phlegm, yellow bile, and black bile. Having an excess of one of these determined a person's temperament: sanguine, phlegmatic, choleric, or melancholic.
  - Illness, thus, was understood as a loss of internal balance. A high fever, for instance, meant that the patient had an excess of blood, and bleeding was called for.
  - People also believed that internal imbalances could be caused by bad air, or “miasmas.”

### Germ Theory

- In the decades before 1900, the authority of earlier concepts was overturned by medical pioneers who advanced germ theory, the

understanding that important diseases were caused by infection with microorganisms. This revolutionized pathology and surgery. The pioneers of germ theory included a series of great scientists who further interpreted the discoveries of Leeuwenhoek.



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**The Martians in H. G. Wells's 1898 novel *The War of the Worlds* were slain by the “disease bacteria against which their systems were unprepared.”**

- By the 1840s, a number of physicians noticed evidence for the spread of disease from person to person, not by miasmas. For example, Ignaz Semmelweis, a German-Hungarian doctor, discovered that doctors themselves were responsible for spreading puerperal (“childbed”) fever at a hospital in Vienna.
- Another doctor, John Snow, traced deaths in London’s cholera epidemic to one neighborhood water pump and showed that cholera was a waterborne disease. In 1865, Joseph Lister, a professor of surgery at the University of Glasgow, revolutionized antiseptic procedures in surgery, reducing infections markedly.
- The 19<sup>th</sup> century saw worldwide reform movements to create more hygienic urban environments, to inspect food production, and to instill ordinary means of ensuring public health. Something as basic as washing hands with soap was a revolution of its own.
- The great breakthrough came with the work of the French microbiologist Louis Pasteur.
  - Pasteur’s experiments proved that the fermentation of wine and milk was caused by microbes. “Pasteurization” is the process of heating foodstuffs to delay the action of microbes.

- Pasteur arrived at the conclusion that germs caused infectious disease. This was confirmed in his investigations of an anthrax epidemic affecting sheep and humans in 1879.
- At the same time, in Germany, Robert Koch was also studying anthrax and came to the same conclusion. In 1882–1883, he identified the bacteria that caused tuberculosis and cholera. As a result, he won the Nobel Prize in Medicine for 1905.
- From 1900, the hunt for bacteria and disease agents became an international and collective exercise. Significant advances in medical knowledge were made as a result of cooperation through medical journals and conferences worldwide. The microbes that caused typhoid, diphtheria, tetanus, plague, and rabies were identified.

### **A New Drug War**

- Once vectors of disease were discovered, it might be possible to work methodically to prevent them (by vaccine) or cure them. Now, the front shifted to fighting diseases that already had established themselves. The stage was set for a new drug war—one to discover healing medicines.
- Impressive advances were made in Germany. The Nobel Prize–winning German-Jewish scientist Paul Ehrlich conducted work on the effects of chemicals on diseases, seeking what he memorably called the “magic bullet.”
- In 1910, with a Japanese colleague, Ehrlich tested Salvarsan, an arsenic drug that helped destroy syphilis. Later, the German scientist Gerhard Domagk pioneered the first of the sulfonamide drugs. And a path-breaking advance came with the serendipitous discovery of penicillin by Alexander Fleming in 1928.

### **Fleming’s Life**

- Fleming was born in rural southwestern Scotland in 1881, the seventh of eight children. Like Darwin, his youth was spent close to nature, observing and exploring. This shaped his later life and career.

- When he was 14, Alexander was sent to London to school. For a while, he was employed at a shipping business, but that made clear to him that he did not want a commercial career. Eventually, he followed an older brother into the medical profession. From 1901, Fleming studied at St. Mary's Hospital Medical School in London and went on to spend the rest of his career there.
- He studied under the notable bacteriologist Almroth Wright, the discoverer of the typhoid vaccine. Once Fleming earned his degree, he went into private practice, treating syphilis with the Salvarsan that Ehrlich had invented.
- During the First World War, he worked in a military hospital in France, at a time when many soldiers died from infections of their wounds after they were evacuated from the trenches. Fleming experimented with different antiseptic procedures and found that strong chemical antiseptics did more harm than good, destroying tissue.
- On returning to St. Mary's after the war, Fleming continued his work with antiseptics. In 1921, he accidentally discovered lysozyme, a natural human antibacterial enzyme found in bodily fluids.
- At this point, Fleming was an established and noted scholar, although his laboratory was marked by creative disorder rather than severe regimentation. The fact that he kept the door to the lab open to encourage air circulation resulted in his fateful discovery of penicillin.
  - The spores from a downstairs mycology lab, where experiments were conducted on fungi and molds, drifted into Fleming's rooms.
  - When the weather turned unseasonably warm, the mold spores reproduced where they had landed—in petri dishes containing staphylococci.
  - In looking at the petri dishes carefully, Fleming noticed that the mold was somehow inhibiting the growth of the bacteria. He identified the mold as *Penicillium notatum*.

## Development and Application

- Of course, Fleming's observation was not the end of the matter. There was now the question of how to use this discovery, how to develop it as a practical healing tool that could be produced in a cost-effective way. Fleming continued to experiment with the new product. He found that even in small quantities, it was remarkably effective in stopping bacteria.
- When he first discovered this strange substance, Fleming called it "mold broth" or "mold juice," which were good descriptions of what it was but not as impressive as the new name he found for it: penicillin. Then, in 1932, Fleming largely gave up on active work on his discovery; his laboratory was not designed to produce purified penicillin on a substantial scale.
- After a lag of some years, Howard Florey, a professor of pathology at Oxford, read an article about Fleming's findings and decided to follow up on this research. In a large laboratory at Oxford, Florey, Ernst Chain, and others purified penicillin in large quantities and showed that they could cure mice injected with bacteria. In 1940, they tried out their product for the first time on a human, a policeman, who recovered from a serious infection.
- Research also extended to the United States. There, in 1942, the first person whose life was saved with penicillin was a native New Yorker, Anne Miller, who was battling a life-threatening streptococcal infection. After an injection of penicillin she recovered and lived another 57 years!
- The outbreak of the Second World War created the desperate need for mobilization to produce vast quantities of penicillin at breakneck speed. The British and American governments backed this effort. During the war and in the reconstruction afterward, penicillin saved millions of lives.

- After penicillin showed its potency during the war, other antibiotics were developed. In 1944, American researcher Selman Waksman developed streptomycin, which reduced and controlled tuberculosis.
- In the 1950s came the development of broad-spectrum antibiotics for a range of bacteria not covered by penicillin. These were heady days, when some thought that medicine's advance was so successful and relentless that soon all diseases might be wiped out by magic bullets. Progress continues, with the eradication of smallpox in 1980 and guinea worm disease likely also to be eradicated soon.

### **The Future of Antibiotics**

- Already by 1946, Dr. Fleming warned that incorrect use of penicillin could backfire. If the doses were too small to truly wipe out an illness, eventually, bacteria would develop resistance to penicillin. This is precisely what is happening today.
- Doctors today are seeing more and more diseases that have developed resistance to generations of antibiotics. Tuberculosis is making a comeback. Illnesses that decades ago could be treated with penicillin pills now demand hospitalization and intensive care. Antibiotics have been extensively used in livestock agriculture, and experts also warn of the dangers of this use.
- The prospect before us is frightening and discouraging. The head of the World Health Organization has stated, "A post-antibiotic era means, in effect, an end to modern medicine as we know it... Things as common as strep throat or a child's scratched knee could once again kill."
- Paradoxically, some profound turning points are not permanent. They can be overtaken by other great forces, for good or ill. Yet improved understanding is always a source of hope. A new model of the human body as an ecosystem, complete with a "microbiome" of trillions of bacteria, may yield new strategies for maintaining health.

## Suggested Reading

Brown, *Penicillin Man*.

Hobby, *Penicillin*.

Horvitz, *Eureka!*

Waller, *The Discovery of the Germ*.

## Questions to Consider

1. How can one cultivate the alertness to chance that Dr. Alexander Fleming exhibited so well?
2. Given that Dr. Fleming and Leeuwenhoek both experienced serendipity, what were the main differences between the two men and their work?



# 1942—The Dawn of the Atom

## Lecture 20

**O**n December 2, 1942, Enrico Fermi and a team at the University of Chicago produced and controlled a fission chain reaction for the first time in human history. This beginning was small—producing only enough energy to power a light bulb—but within three years, it led to the construction of the atomic bomb. The effects of this turning point were profound. The work in Chicago ushered in the nuclear age. The atom bomb and later generations of nuclear weapons made the modern phenomenon of total war absolute: For the first time, mankind possessed the technology by which it might destroy itself. Modernity is marked by this peril, produced by our own progress in technology and science.

### Changing Theories in Classical Physics

- Until the start of the 20<sup>th</sup> century, the dominant model of physics had been classical mechanics—the physics shaped by Isaac Newton—which suggested a universe of regularity, predictability, and stability.
- Just before the turn of the century, new discoveries were made. The work of the French researchers Marie and Pierre Curie revealed that atoms were not stable, orderly units but could emit subatomic particles and energy.
- In 1900, the German physicist Max Planck produced quantum theory, which described what had been seen as solid matter as having qualities of waves and radiation as having qualities of particles. The new quantum mechanics on the atomic and subatomic scale dealt with probabilities, not the certainties of classical mechanics.
- In 1905, the German-born physicist Albert Einstein announced his special theory of relativity, which along with quantum mechanics is one of the bases of modern physics. In his famous equation,  $E =$

$mc^2$ , Einstein showed that matter was a form of energy. Mass can be converted into energy and vice versa.

- Ernest Rutherford, a British physicist, established the nuclear model of the atom, and in quick succession, different subatomic particles were identified: electrons, protons, and neutrons. This subatomic world acted according to the postulates of quantum mechanics.
- In 1927, the German physicist Werner Heisenberg proposed his famed “uncertainty principle,” according to which the very act of measurement altered that which was being observed, further undermining the certainties promised by classical physics.
- The tremendous power latent in the atom was intuited by a figure we have encountered repeatedly in these lectures, the British writer H. G. Wells. In 1914, Wells published a novel entitled *The World Set Free*, in which he predicted the development of the atom bomb. Wells is fascinating for the purposes of our course, not as a hero or someone who was always right, but as someone who wrestled with questions of progress, modernity, and the human future.

### Launch of the Manhattan Project

- New advances in atomic knowledge started cascading at a time of great international peril, the 1930s, with dictatorships on the march. In this decade, more than 100 noted scientists emigrated to Britain or the United States, and this “brain drain” would prove decisive. It included Einstein, Fermi, and Leo Szilard, Eugene Wigner, and Edward Teller.
- Initially, it seemed that Hitler’s Germany had a lead. In 1938, German physicists conducted experiments in nuclear fission, splitting the atom. The news of the German advance frightened the refugee scientists. Nuclear fission could release significant power, which could be used to produce bombs.
- Other scientists asked Einstein to write a letter to President Roosevelt, warning him that recent scientific advances could

result in the construction of a powerful bomb. In a sense, this letter launched American efforts to build a bomb in order to reach that goal before the Nazis.

- In 1941, Roosevelt ordered the founding of the Office of Scientific Research and Development, headed by Vannevar Bush, an engineer, inventor, dean at MIT, and later, head of the Carnegie Institution. Bush's job, simply put, was to mobilize science for total war. Indeed, he has been called the father of the military-industrial complex.
- The outcome of these efforts was the Manhattan Project. The military commander was General Leslie Groves. The physicist Robert Oppenheimer was put in charge of the research effort. Overall, the project, which began with a \$6,000 budget, ended up costing \$2 billion.

### **Progress of the Manhattan Project**

- The Manhattan Project gathered an ever-expanding group of scientists and engineers, who often knew only their parts of the larger project. Some didn't find out what they had been working on until they heard the news of the bombing of Hiroshima on the radio.
- From the start, the scientists wrestled with the moral implications of their work—creating a weapon of mass destruction. All agreed that the Nazis must not build the bomb first. Many saw themselves as building a tool that would function as a deterrent. Whether this idea was realistic or not, the race continued at breakneck speed.
- The first step was to start and control a chain reaction, as was done in Chicago in December 1942. This first nuclear reactor was code-named CP1 for “Chicago Pile #1.” The pile of almost 400 tons of graphite bricks and uranium and the control rods were assembled in secrecy from around mid-November.
- When the first test was run, no one knew for sure that the chain reaction would not run out of control or that no explosion would

ensue. There was no shield or cooling system. A technician stood ready to insert a control rod that would stop the reaction, and others had buckets of cadmium and salt to throw onto the pile as a last resort.

- Fermi started the process, and the pile began to operate, building to criticality over the course of hours. At one point, Fermi called for a lunch break, but afterward, the experiment resumed and, by 3:25, was declared successful.
- With this door to atomic energy opened, the project to build a bomb took off in earnest. Different lines of research were pursued simultaneously at different sites: in Hanford, Washington; in the mountains of eastern Tennessee; and at Los Alamos in New Mexico, 34 miles north of Santa Fe.
- On July 16, 1945, the first atomic bomb was detonated at 5:29 am in New Mexico, at an air force base in Alamogordo, 120 miles south of Albuquerque. This was the Trinity test. The atomic explosive device was installed atop a steel tower. Some five and a half miles away, observers with scientific instruments crouched down in a bunker to experience the results.
- This test, too, was accompanied by uncertainty; some physicists argued about whether the explosion would cause the earth's atmosphere to catch fire, ending all humanity at once. First came a blinding flash, then a heat wave, followed by a shock wave. The explosion sent a mushroom cloud more than seven miles into the air and was heard in three states. The bomb was ready for use.

### **Hiroshima and Nagasaki**

- After years of hard struggle, Hitler's Germany had been defeated in May of 1945, but the Second World War continued in the Pacific. What happened next marked the point where total war became absolute.

- In August 1945, the United States dropped two bombs on Japan at Hiroshima and Nagasaki. In Hiroshima, between 80,000 and 140,000 died at once, and many more succumbed afterwards. In Nagasaki, 24,000 were killed immediately. The blast, firestorm, and human suffering surpass words and imagination. This was truly ground zero for the revelation of the destructiveness of war.
- The decision to use the atomic bombs remains controversial today. That decision was made in the context of a war in which 60 million had been killed and when the extent of the bomb's destructive capabilities were not yet known.



**The Atomic Bomb Dome still stands in Hiroshima, now serving as a memorial to those who were killed on August 6, 1945.**

## **The Nuclear Legacy**

- Nuclear weapons loomed over the decades that followed, especially in the escalating Cold War that began once the United States and the Soviet Union, former allies, confronted each other on a global scale.
  - By 1949, the Soviet Union had detonated its own atomic bomb, aided by both brilliant physicists and spies who had infiltrated the Manhattan Project. Both sides produced even more powerful hydrogen bombs in the 1950s.
  - The ruling logic of the Cold War was that of deterrence: threatening one's enemy with weapons of unthinkable power to stave off an attack. This doomsday scenario even acquired its own appropriately official-sounding bureaucratic acronym: MAD, meaning "mutually assured destruction."

- Throughout the atomic age, which we still live in today, some 128,000 nuclear weapons were built. More than 500 aboveground and more than 1,500 underground nuclear tests were conducted. The club of those states going nuclear also grew, with Britain joining in October 1952, France in 1960, and China in 1964. Since then, India, Pakistan, Israel, and North Korea have been added.
- Anxieties about the spread of nuclear weapons led to the Nuclear Test-Ban Treaty of 1963, then the Treaty on the Non-Proliferation of Nuclear Weapons in 1968. But fears grow today of what further proliferation might mean, with what we might ironically call a democratization of these weapons.
- A well-known peak moment of Cold War peril, when the confrontation might have turned hot, was the Cuban missile crisis of 1962, which was defused by negotiation. Almost unknown is that nuclear war might have broken out accidentally in 1983, when Soviet early-warning devices incorrectly reported an American missile launch.
- Even the peaceful use of nuclear energy has remained problematic in the eyes of many. Nuclear accidents at Chernobyl in the Soviet Union in 1986 and in Japan at Fukushima in 2011 further stoked concerns.
- The opening of the atomic age raised profound questions about the authority of progress through science.

### Suggested Reading

DeGroot, *The Bomb*.

Rhodes, *The Making of the Atomic Bomb*.

## Questions to Consider

1. If World War II had not broken out, how might atomic research have developed differently without military necessity to drive it?
2. Were the hopes of scientists that the atomic bomb would be used only as a deterrent basically naïve?

# 1969—Walking on the Moon

## Lecture 21

**T**he first humans walked on the moon on July 20, 1969, during the Apollo *II* mission. Those steps on another world marked a new epoch in how humans viewed their own earth and potential. Yet since 1972, with the end of follow-up missions to the moon, humans have not returned, nor have they gone on manned expeditions to other planets. Is the moon landing, like the voyages of Zheng He in the 1430s or those of Columbus around 1492, a turning point that did not turn—an end—or a beginning of vast discoveries and exchanges?

### Wonderment at the Moon

- Throughout much of history, mankind had wondered at the moon. Prehistoric astronomers aligned such monuments as Stonehenge with their reckoning of the positions of the moon and stars. In modern times, Galileo used his telescope to make more detailed surveys of lunar features.
- Repeatedly, people imagined what it would be like to journey to the moon. Jules Verne's popular 1865 novel, *From the Earth to the Moon*, predicted a moon launch from a site in Florida. In 1901, H. G. Wells published *The First Men in the Moon*, detailing a mission undertaken by a shady businessman and a scientist. A year after Wells's novel, the first master of film special effects, Georges Méliès, produced *A Trip to the Moon*.
- At the start of the 20<sup>th</sup> century, scientists were emboldened to think about how to turn these speculative stories into reality. Their answer was not a giant cannon but rockets, an old technology from China that offered new possibilities when built on a larger scale.
  - The Russian mathematician Konstantin Tsiolkovsky explored theoretical aspects of space flight—the use of rockets to reach out into the cosmos.





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**The names given to features of the moon—craters called Columbus, Leeuwenhoek, Darwin, Diderot, Edison, and Fermi—echo our turning points.**

- In the United States, Robert Hutchings Goddard was fascinated by rocketry. He worked on liquid-fueled rockets, launching the first in 1926.
- The German rocket scientist Hermann Oberth was particularly inspired by Verne's *From the Earth to the Moon*. In Germany, enthusiasts formed rocket clubs.

### **Wartime Advances in Rocketry**

- Ultimately, the space program grew out of the Second World War and the advances in rocketry during wartime. This phenomenon, of discovery following from war, is a reverse of the pattern we have

often seen in this course: inventions being weaponized. In this case, weapons were turned to more peaceful uses.

- In the aftermath of the Second World War, scientists discovered that the Nazis were not as far along in the development of the atomic bomb as had earlier been feared. They had, however, been at work on other superweapons. The young engineer Wernher von Braun had been put in charge of a research project into rockets, in particular, to produce the V-2 missile.
- As the defeat of Nazi Germany neared, the former Allies began to position themselves for the postwar world. This was the opening of the Cold War. American and Soviet intelligence officials fanned out to grab German rocket scientists and exploit their know-how. Most of the scientists surrendered to the Americans, but others opted to help the Soviet effort.
- In 1945, the Americans brought von Braun and the team that had built the V-2 to the United States. Their missiles were tested at White Sands, New Mexico. Von Braun became an effective spokesman for space exploration, infecting others with the dream that possessed him.
- On the Soviet side, the impetus passed to Sergey Korolyov, an aeronautical engineer. He had been arrested in 1937 by the Soviet secret police in the purges ordered by Stalin. During the war, he was put to work in a prison laboratory. Afterwards, Korolyov became a driving force of the Soviet space effort, but because of intense Soviet secrecy, he always remained hidden in obscurity.

### The Space Race

- As the Cold War intensified, it became clear that satellites could be powerful tools for information gathering. The United States and the Soviet Union raced to put a satellite in orbit. The military dimension of this work was prominent; for instance, the rockets to launch satellites could also be used to deliver nuclear warheads.

- The Soviet Union amazed the world when, after intense secrecy, it launched Sputnik on October 4, 1957. The satellite was small and basic looking, a 23-inch-diameter sphere with four antennas, weighing 184 pounds.
- In response, the American media spread a mood of alarm, seeing the launch as proof of a Soviet technological leap that the United States could not yet match. Money poured in to scientific research projects and science education programs.
- In November of 1957, the Soviet Union launched the first animal into outer space, a dog, on Sputnik 2. After American failures to match the Soviet feat, von Braun's team of researchers finally succeeded with their own launch of Explorer 1 in January 1958.
- Research facilities were established. Although intense secrecy surrounded the Soviet effort, publicity accompanied the founding of NASA in 1958, and the organization grew to mammoth proportions. At its height during the Apollo program, 34,000 employees worked directly for NASA and hundreds of companies were involved in providing equipment and materials.

## **Human Spaceflight**

- The Soviet Union again seemed to gain the lead in the race when it put the first human into space on April 12, 1961. The Soviet cosmonaut Yuri Gagarin was lifted into orbital flight on the Vostok 1. After 108 minutes, he returned to earth.
- After Gagarin's flight, U.S. President John F. Kennedy was informed that the Soviets might soon be able to send larger spacecraft with more cosmonauts around the earth and even around the moon.
- In response, Kennedy charged his advisors with drafting a "space program which promises dramatic results." The strategic plan that followed concluded that the moon should be the object, because of the immense prestige that came from space exploration achievements as "part of the battle along the fluid front of the Cold War."

- On May 25, 1961, Kennedy announced to a joint session of Congress that the United States would land a man on the moon before the end of the decade. Winning the race to the moon was viewed as a necessary victory in the Cold War. The building of the Berlin Wall in 1961 and the Cuban missile crisis of October 1962 highlighted Cold War tensions.

### Reaching the Moon

- Within three years of Kennedy's announcement, NASA's budget increased five times over. The costs of the program were five times greater than those of the Manhattan Project we discussed in the last lecture. Intense publicity surrounded the selection of a team of American astronauts, who became national heroes.
- The basis of the Apollo moon program was the Saturn V rocket. It was decided to mount the spacecraft on the rocket rather than assemble it in outer space. The Apollo spacecraft came in three parts: a command module, a service module, and the lunar module. A command post was established near Cape Canaveral in Florida.
- Meanwhile, the Soviet program was also racing forward. A Soviet cosmonaut, Aleksey Leonov, was the first to achieve a spacewalk. The new Soyuz spacecraft was launched in 1967, but on reentry, it slammed into the earth, and Vladimir Komarov became the first casualty of a space mission. The death of the engineer Korolyov in 1966 was a further setback for the Soviet efforts.
- The American effort also experienced a tragic setback: In January 1967, three American astronauts were killed during a fire while testing the Apollo command module. In spite of this, the first manned Apollo mission was put into orbit in October 1968.
- On December 24, 1968, American astronauts on Apollo 8 were the first to orbit the moon and send back photographs of the "earthrise" over the moon. No one had ever before seen the whole earth in all of its beauty and fragile perfection.

- Apollo 11 lifted off on July 16, 1969. On board were Neil Armstrong; Edwin “Buzz” Aldrin, Jr.; and Michael Collins. The search for a safe landing place on the moon used up almost all of the reserves of fuel, and a computer alarm caused by a software problem could have led to aborting the mission. But at 4:18 p.m. EST on July 20, Armstrong announced to Houston, “The Eagle has landed.”
- Six and a half hours later, Armstrong stepped out of the craft and became the first man to walk on the moon. He and Aldrin gathered moon rock samples, planted an American flag on the surface, and left a plaque that reads, “We came in peace for all mankind.” The men returned safely to earth on July 24, landing in the Pacific.

### **A Global Event**

- The moon landing was, well and truly, a global event. More than half a billion people around the world watched the moment on live television, the most widely witnessed live media event until that time. Even in the Soviet space control station, cheering was reported to have broken out for this triumph.
- So epic were the proportions of this turning point that inevitably, contrarian voices arose. Conspiracy theories developed about this and later moon missions, claiming that they were the product of special effects in a studio. Some historians suggest that in the era of the Watergate scandal, this was a symptom of mistrust in government and authority.
- In all, 12 Americans on six Apollo missions walked on the moon from 1969 to 1972. After Apollo 17 in 1972, no humans have left the orbit of the earth. The Soviets never managed to make their rocket perform and canceled their program in 1974.
- While it lasted, the era of moon exploration gave a new conception of human capacity. Certainly, being able to explore space was more constructive and positive than being able to destroy the earth with nuclear weapons. A new mantra entered human consciousness: If

we can put a man on the moon, why can't we...? This feat expanded our sense of the humanly possible, an attribute of modernity.

- Today, more than 40 years later, we ask: Is this turning point an end or a beginning? Has human capacity or will declined since the 1970s?
  - Some experts point out that new participants have begun space exploration. In 2003, China sent its first astronaut into orbit and plans more space activity to follow.
  - Currently, while NASA funding has been cut and space activity declines, commercial ventures have risen to new prominence. Does the future of space exploration lie with private enterprise?
  - Most basically, does humanity's future extend beyond the earth? The British physicist Stephen Hawking has declared that without space colonization, humanity is not likely to survive.

### Suggested Reading

Cadbury, *Space Race*.

McDougall, *The Heavens and the Earth*.

### Questions to Consider

1. Would the moon mission have taken place without the Cold War?
2. Do you think that manned space exploration is just beginning or largely over?

# 1972—China Enters the World Balance

## Lecture 22

On February 21, 1972, an hour-long meeting took place in China between U.S. President Richard Nixon and Chairman Mao Zedong of the People's Republic of China. What made this meeting a turning point was both the fact of the conversation itself and the massive international realignment of world politics that followed. This turning point revealed a key moment in a more extended process: that of China seeking its own modernity and place in the modern world. After deadly and destructive internal convulsions, it set China on the course it continues to follow today. Further, it redrew world politics, shifting the balance of the Cold War and producing an international transformation with global consequences that are still unfolding today.

### China's Role in the Modern World

- As we saw at the start of our course, successive dynasties and emperors had understood China as occupying a central place of importance in the world. They had seen their realm as self-sufficient. The voyages of Zheng He had been about manifesting that authority far and wide.
- This self-understanding and concept of authority were shattered in the Opium Wars.
  - The onslaught of the British East India Company and its drug trade revealed the full power of Western imperialism when united to the energies of the Industrial Revolution.
  - The emperor was forced to sign unequal treaties that gave special trade privileges to foreigners and set up treaty ports. Moreover, these foreigners were not subject to Chinese legal authority but enjoyed so-called extraterritoriality.
  - For the Chinese, this was nothing less than a civilizational crisis. China suddenly appeared weaker than the foreigners it

had earlier belittled. Further, China was not even sovereign, not the ruler of its own house.

- For the next century, Chinese political leaders and thinkers struggled with the implications of this crisis. How could China best find its place in the new world? What sort of modernity could it craft for itself? Should it imitate Western models or seek to renew its old values, such as Confucianism, for the present? Several generations tried all of these paths in succession.

### **The People's Republic**

- In 1912, the Manchu dynasty was overthrown by Chinese nationalists and the Chinese republic was proclaimed. The revolutionary movement was led by Sun Yat-sen, who founded the new nationalist revolutionary party to modernize China. The aims of the party were to promote national independence, progress, and science.
- Still, unequal treaties with foreign powers remained in force, and China's continuing inferior status was made bitterly clear in the aftermath of the First World War. China had entered the war against Germany on the side of the Allied powers, but at the Treaty of Versailles in 1919, Germany's holdings in China were awarded to Japan.
- This shocking news provoked a huge demonstration on May 4, 1919. Thousands of students from the university in Beijing massed at Tiananmen Square in protest. Those few hours of dissent gave birth to the May Fourth Movement, sometimes known as the New Culture Movement, marking a break with Confucian values in favor of new ideas imported from the West.
- Amidst this turmoil, some radicals from the university founded the Chinese Communist Party in 1921. Among them was a young assistant at the university library, Mao.
  - The Communists saw the answer to China's problems in terms of another ideology imported from the West: Marxism and its program of "scientific socialism." These would, it was



promised, eliminate class exploitation by establishing the dictatorship of the working class.

- The Chinese Communists looked above all to the new Soviet Union, which had been established by Lenin and the Bolsheviks in the wreckage of the Russian Empire.
- In addition to this internal conflict between the nationalist government and the Communists, China now also was confronted with the invasion of Japanese imperialism. From 1937 to 1945, a Japanese-Chinese war raged.



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**Mao was born in 1893 in Hunan province, the son of a peasant landlord; at the time of the May Fourth Movement, he was an assistant at the university library in Peking.**

- When this war ended, the civil war between the nationalist forces and the Communists under Mao resumed in full force. This conflict finally ended by 1949, with the nationalist forces retreating to Taiwan. Meanwhile, on October 1, 1949, Mao proclaimed the establishment of the People's Republic of China. The building of a new China on the communist model of modernity had begun, at what would be tremendous human cost.

### **China under Mao's Leadership**

- Under Mao's leadership, China was shaped by some of his core convictions. Whereas Confucian thought valued order, harmony, and stability, Mao praised turmoil and revolution. Disorder promised him access to power, which he could use to create the modern China he envisioned. Revolution would not only remake China but place it at the center of the world again.

- The costs of Mao's policies were harrowing. Attempts from 1958 to 1962 to industrialize the country through the creation of huge communes for collectivized agriculture were called the Great Leap Forward. These efforts led to a horrific famine that left an estimated 40 million dead.
- Then, Mao launched a further campaign against the old China with the Cultural Revolution of 1966 to 1976. This campaign attacked the Communist Party and the government, which were accused of having strayed from a true revolutionary path.
  - Mao's concern was that the forward momentum of the revolution had slowed, winding down when it needed to be accelerated.
  - Thus, the young generation, organized into Red Guard units, was encouraged to attack the older generation, their teachers, local authorities, and even parents. Soon, there were several million Red Guards.
- At the same time, millions of Chinese were purged, arrested, killed, or sent to reeducation camps. Senior party officials were accused of being spies and counterrevolutionaries, eerily echoing the French Revolution, which also had consumed many of its own creators during the Reign of Terror. Indeed, the Red Guards proudly espoused what they called "Red Terror."
- Public campaigns aimed to erase foreign influence and traces of the past, especially the rich Confucian culture. One slogan condemned the "Four Olds": "old ideas, old culture, old customs, old habits of the exploiting classes."
- China also seemed to shut itself off from the world: Chinese ambassadors were recalled from those countries where China was diplomatically recognized to be examined for their political loyalties and, perhaps, purged.

- In the midst of this upheaval, Mao and his comrades began to fear China's increasing isolation and the threat of their former ally, the Soviet Union. Relations between the two powers had cooled, then grew poisonous. By 1969, Soviet and Chinese troops were clashing at the Amur River, at China's northern border. Would this unofficial conflict turn into full-scale war? Mao decided that China needed to find new relationships internationally and began to wind down the internal fury of the Cultural Revolution.

## **China and the United States**

- The time was ripe for a mutual approach between China and the United States, which had not had a relationship for decades. Indeed, up to this point, the United States did not recognize Communist China, favoring instead the Kuomintang government in Taiwan as the legitimate China.
- Now, however, President Richard Nixon saw a chance for a profound change in international affairs. He was convinced that crafting a new relationship with China would put pressure on America's rival in the Cold War, the Soviet Union. He also hoped that China might help end the Vietnam War, which was dragging on inconclusively and devastating public opinion in America. In the end, his aim was an overarching stability worldwide.
- In secret, Secretary of State Henry Kissinger and the Chinese foreign minister Zhou Enlai planned a visit. To Nixon, the visit seemed politically risky, even if his anticommunist reputation gave him cover. But in the end, he counted the trip a great success.
- The shift in the Cold War balance that resulted from the visit gave the United States more leverage in dealing with the Soviet Union. Nixon was able to draw the Vietnam War to a close. The normalization of relations between the United States and China marked a new stage in their relationship, quite different from the previous frosty silence.

- In spite of this success, Nixon's presidency imploded soon afterward with the Watergate cover-up and his resignation in 1974. But to this day, "Nixon goes to China" is synonymous with a surprising event. Indeed, ironically it was Nixon's anticommunist record that allowed him to make this approach.

## The Opening of China

- The new relationship with the United States was only part of a larger entry of China onto the world stage as a sovereign state, part of the Westphalian international system. China was no longer subject to what had been called a "century of humiliation."
- With the opening of 1972, the regime in China underwent surprising, even shocking changes. After Mao's death in 1976, a fierce leadership struggle took place, at the end of which Deng Xiaoping became leader.
  - A more pragmatic leader who had been purged by the radicals, Deng set a new course that introduced a reform era from 1978. Without repudiating Mao explicitly, Deng altered many of the earlier leader's principles radically.
  - His policy pressed the so-called "Four Modernizations": agriculture, industry, military, and science. In a profound reversal from Marxist ideology, Deng also endorsed the slogan "It is glorious to get rich."
- Deng sought to unleash China's economic potential by promoting private enterprise while retaining political control for the Communist Party.
  - The huge collective farms that had been the essence of Mao's policies were dismantled in stages, and farmers were allowed to sell some of their produce on the market.
  - Small businesses were permitted, and by 1985, there were about 12 million of them. As a result, during the 1980s, per capita income roughly doubled.

- Deng also created four Special Economic Zones with low tax rates to encourage foreign investment.
- Economic development in China surged ahead. For three decades, the Chinese economy has boomed, and in the first years of the 21<sup>st</sup> century, Chinese annual growth rates were around 10 percent. In 2011, China overtook Japan as the world's second largest economy, and some predict that it may be the world's largest by 2025.
- But these changes perhaps have produced what Marx would have called internal contradictions. After the Communist Party endorsed private enterprise, where does that leave its ideological legitimacy, its authority?
  - In 1978, a dissident named Wei Jingsheng called for a "Fifth Modernization" to add to Deng's Four: democracy. Wei announced, "Democracy, freedom, and happiness are the only goals of modernization. Without this fifth modernization, the four others are nothing more than a new-fangled lie."
  - For his statements about what modernization really means, Wei was arrested and sentenced to 15 years in jail.

### Suggested Reading

Lovell, *The Opium War*.

MacMillan, *Nixon and Mao*.

Mitter, *Modern China*.

Ropp, *China in World History*.

Spence, *Mao Zedong*.

## Questions to Consider

1. In this turning point, were the personalities of the leaders (Nixon and Mao) incidental to the outcome or vitally important?
2. If China had remained in international isolation for several more decades, how would our world be different today?

# 1989—The Fall of the Berlin Wall

## Lecture 23

In this lecture, we consider a relatively recent turning point that already has become history: the largely peaceful collapse of communist dictatorships as a result of the social mobilization of ordinary people for nonviolent protest. With amazing speed and little warning, the collapse of communist regimes in Central and Eastern Europe ended the Cold War that had defined world politics for half a century and pushed forward a global phenomenon we have traced already, decolonization. This revolution was striking for the grassroots mobilization that made it happen: It resulted from the convictions of millions of ordinary people who shed their fear of authority and power.

### Modernization under Stalin

- Ever since its founding by Lenin after the 1917 Bolshevik revolution, the Soviet Union was a radical new kind of state. The Marxist ideology of this communist project looked forward to launching a new stage of human history, a final modernization.
- Marx projected a final revolution that would eliminate all inequalities, all private property, and all classes but the working class. He and his followers claimed that theirs was a scientific socialism that had discerned the direction of history and its iron laws.
- This conviction of certainty gave vast confidence to the revolutionaries. But it also could be used to justify great crimes. Stalin proved a master of just such atrocities in the name of modernization, with a death toll in the millions.
- In this course, we have discussed different paths to modernization. Like Mao, Stalin pressed a compulsory version of modernization that involved subordination to a plan that was synonymous with the will of the leader. It also involved an assault on existing society in

the form of a collectivization drive and famine, as well as purges, mass arrests, and executions. All this was in favor of a future planned society.

### Berlin Crises

- After the Allied victory in World War II, Stalin expanded his personal rule. The Soviet Union absorbed the Baltic states and parts of Poland and set up allied regimes in Poland, Czechoslovakia, Hungary, Romania, and Bulgaria. Stalinist political systems were imposed on these countries, and a sustained assault took place on these societies to bring them under state control.
- As the Cold War escalated, Germany became ground zero. The country was divided into separate zones of military occupation, and Berlin itself, the capital, was also divided, even though it was inside the Soviet zone. Eventually, a Federal Republic of Germany under American sponsorship was established in the west and the German Democratic Republic under Soviet sponsorship was established in the east.
- For years, the existence of West Berlin inside the Soviet area of control was an irritant to Stalin and his successor, Khrushchev. The result was a series of Berlin crises, making the city a hotspot where the Cold War might potentially tip over into World War III.
- Stalin tried blockading West Berlin in 1948, but the Americans and British used a dramatic airlift to supply the civilian population for 11 months, and Stalin was forced to call off the attempt. After Stalin died in 1953, East Berlin was the scene of the Arbeiteraufstand, the Workers' Uprising, when striking workers had begun calling for free elections. Soviet tanks crushed the workers but left in tatters the ideological claim of the East German communists to represent the working classes.
- Because Berlin was a city under shared control, one could travel to Berlin, cross over to the western part of the city, and then travel on to western Germany, where citizenship was automatic to Germans.





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**The East German government termed the wall the “Anti-Fascist Protection Barrier.”**

From 1949 to 1961, some 2.5 million people fled from East to West Germany, and communist leaders became determined to stop the exodus.

- Without warning but with the approval of Khrushchev and the Soviet Union, East German police erected the Berlin Wall on August 13, 1961. Police set up blockades and barbed-wire fences. The new barrier provoked panic and desperation on the part of East Germans who still wanted to leave; escaping the republic became a crime.
- Eventually, the wall inside Berlin ran for 28 miles through the city center, and another wall surrounded the rest of West Berlin for 75 miles. The border between East and West Germany was likewise separated by walls, electrified fences, and “death strips” with raked sand that would reveal the footprints of escapees.

### **Disintegration of the Soviet Empire**

- After Stalin’s death, the combination of fear and ideological fervor that had propelled communism was increasingly replaced by conformity, a loss of momentum, and less resort to mass violence, although uprisings in Poland, Hungary, and Czechoslovakia were brutally crushed.
- As the promises of outpacing the Western capitalist countries and the United States were dropped, a sort of malaise set in. This is hard to quantify or pinpoint, but in aggregate, it was a major

transformation, especially in the psychology of the ruling elites of the party.

- Indeed, even the existence of party elites, with special privileges and access to goods and travel for themselves and their families not allowed to ordinary people, made a mockery of the ideological promise of equality.
- These factors conspired to engender cynicism and a loss of confidence. But confidence and certainty had been key attributes for Lenin and Stalin, who praised a certain hardness of ideological confidence based on inevitable historical victory. When that historical certainty was eroded, the confidence of the ruling class went, as well.
- On the western side, the wall was mocked and covered in graffiti. Presidents John F. Kennedy and Ronald Reagan came to Berlin and denounced it. A peace activist from Seattle, John Runnings, conducted a series of one-man protests against the wall.
- In the East, a generation of dissidents urged themselves and others to “live in truth,” whatever the price, rather than repeat the party line. They counseled, “act as if you are free.” If one could do this, fear would no longer rule. The modernity many dissidents envisioned was one of a healthy civil society of free individuals, not pervasive control by the state.

### **The Reforms of Gorbachev**

- In 1985, Mikhail Gorbachev was appointed general secretary of the Soviet Union. A committed Leninist, Gorbachev aimed to introduce a reform program to inject new confidence into the Soviet system and make it work.
- Among Gorbachev’s reforms was a policy of openness in public expression, intended to produce constructive criticism. Soon, however, this reform escaped Gorbachev’s control, unleashing criticism of the ruling regime.

- To reduce the crushing costs of military spending and commitments to its satellite states in Eastern Europe, Gorbachev allowed those states to go their own way. Public demonstrations for free elections led to noncommunist governments in Poland and Hungary.
- East Germany did not liberalize and found itself increasingly isolated. Peaceful demonstrations in Leipzig grew, testimony to an increasing loss of fear by ordinary people.
  - In a kind of domino effect, the liberalization in Hungary undermined East German authority, and an increasing stream of East Germans used Hungary as a way of making their way west.
  - In desperation, the East German communist elite dropped the hardline leader who was urging a violent crackdown and promised reforms, to buy time.

### **The Wall Comes Down**

- In the fall of 1989, new rules for freer travel abroad were being worked out by the communist government—to be enacted sometime in the future. But then, on November 9, 1989, a member of the Politburo prematurely announced these new rules to the press and stated that they were effective immediately.
- Astonished East Berliners went to the border crossings to see what was really going on. The border guards, who were themselves confused, stood aside. Soon, crowds were passing freely into West Berlin, climbing on the wall, and smashing at it with hammers and chisels.
- Less than a year after the Berlin Wall was brought down, Germany was reunited, on October 3, 1990. Today, the wall is completely gone, no longer standing even as ruins.

### **Collapse of the Soviet Union**

- Similar waves of nonviolent protest also brought down the Soviet Union and other communist regimes in Eastern Europe. The Baltic states declared their independence from the Soviet Union in a

process that spread. Ironically, eventually even Russia declared its independence.

- In early 1991, Gorbachev turned toward repression. In Lithuania, Soviet special forces and their tanks killed civilian protestors but could not halt the drive toward freedom. In August 1991, some of Gorbachev's associates sought to take power in a coup and clamp down. But the coup soon folded, and by the end of the year, the Soviet Union was dissolved.
- As independent republics emerged from the wreckage of the Soviet Union, another stage of world decolonization had been achieved, with the end of the ideological empire Stalin had constructed.
- The countries of Central and Eastern Europe have since worked to build democracies on the basis of the sovereignty they were earlier denied and to reintegrate themselves into a Europe from which they had been split.

### **Tiananmen Square**

- China also experienced protests and crisis in 1989, but there, the outcome was not so positive.
- For seven weeks in the spring of 1989, thousands of Chinese students gathered in Beijing's Tiananmen Square, peacefully raising demands for change and democracy. But on June 4, tanks and soldiers moved in and killed hundreds of the protestors.
- Some historians suggest that memories of the Cultural Revolution and fear of disorder stopped the democracy movement from spreading throughout China as a whole. Clearly, a key difference here—compared with East Berlin—is that the party leaders did have the confidence to use violence.
- In the aftermath, the government focused on nationalism as a rallying point and source of legitimacy. A program of "patriotic education" cultivated memories of the Japanese invasion of the

1930s and the Opium Wars. The question remains open today for China's 1.4 billion people: Does such nationalism and economic growth effectively mute calls for democratic change, or are those demands merely postponed to a later day?

### **Results of the Year of Revolution**

- The fall of the Berlin Wall and the collapse of the Soviet Union's ideological empire showed the power and ultimate resilience of civil society, the voluntary interaction of individuals seeking freedom and refusing to fear. In spite of the communist model that had worked to absorb society into the state, civil society revived.
- The newly independent countries of Central and Eastern Europe regained their sovereignty. In spite of predictions that nationalism and ethnic divisions would lead to endless wars, for the most part, these countries have taken a democratic and peaceful road. Now, many of them are part of the European Union.
- Without the democratic revolutions of 1989, only a Europe in the West could have been organized, and that would have been achingly incomplete. Now the question arises: What sort of Europe will emerge or is emerging today?

### **Suggested Reading**

Hitchcock, *The Struggle for Europe*.

Kenney, 1989.

Taylor, *The Berlin Wall*.

### **Questions to Consider**

1. If, as planned, a perfectly automated border wall had been achieved by the East German regime, how might these events have evolved differently?
2. Was the Berlin Wall, in the end, self-defeating?

# 2004—The Rise of Social Media

## Lecture 24

In the last few years, social media and the Internet have changed patterns of how we relate to one another; they have also supercharged key developments that we have discussed earlier in this course: print culture, encyclopedic knowledge, global reach, and the elaboration of civil society. But are our connections through social media making us more global or more insular, locked into niche societies? Is the Internet changing our relationships, our politics, our self-understanding? In this lecture, we examine these questions and further ask whether we are heading toward a turning point of turning points—a profound transformation that we cannot yet even predict.

### Facebook and the World Brain

- In 2004, a sophomore computer science major, Mark Zuckerberg, launched a project that he called “thefacebook” from his dorm room. This platform allowed individuals to post information about themselves, along with photographs. Facebook quickly expanded to universities and colleges across America and overseas. In the summer of 2012, it was approaching 100 million users worldwide.
- An earlier dreamer who had envisioned a world connected by scientific knowledge was H. G. Wells. In 1938, he published a book called *World Brain*, in which he argued that we could achieve world peace if everyone were given the same frame of reference so that science might rule the world. That frame of reference was what he called a “World Encyclopedia.”
- Another important scientific figure also weighed concepts that foreshadowed the Internet. This was Vannevar Bush, a scientist and one of the administrators of the Manhattan Project. In 1945, he proposed what he called a “memex” (“memory extender”) machine as a new kind of encyclopedia. It would be a desk with built-in

access to a collection of fully indexed microfilms containing all the contents of a full library.

### **The Birth of Modern Computers and the Internet**

- The first electronic general computer is often considered the ENIAC machine of 1946. It was developed at the University of Pennsylvania for use in computing artillery firing tables for the U.S. Army. In 1950, at Princeton's Institute for Advanced Study, an all-purpose computer was built for the calculations needed to construct a hydrogen bomb.
- In 1969, the ARPANET was developed by the Advanced Research Projects Agency of the U.S. Department of Defense. This network linked a number of West Coast universities where government-supported research took place.
  - Then, through a program called Internetworking, other research networks were linked to the ARPANET, using standardized protocols for communication. The National Science Foundation also worked on spreading access more widely.
  - After 1993, commercial users, who earlier had not been allowed to participate in what was meant to be a purely research undertaking, were included, and expansion accelerated.
- From the late 1980s, the Internet doubled every year. This growth, in turn, set the stage for the World Wide Web, an Internet application that allows users to survey documents connected by hypertext or hyperlinks.
  - This development began with Tim Berners-Lee, a British engineer and computer scientist, and his coworkers at CERN, a scientific facility in Geneva, Switzerland. They developed a protocol for standardized communication and a browser by 1992.
  - Building on this work, the Mosaic browser was developed at the University of Illinois and made available in 1993, followed

by the Netscape Navigator system in 1994. The use of the web became increasingly popular and, indeed, taken for granted.

- In these early stages, not all were enthusiastic. *Time* magazine concluded in 1994 that the Internet “was not designed for doing commerce,” and *Newsweek* called it a “trendy and oversold community.”
- Others, however, were entranced by the seemingly unlimited potential of the Internet. Investors and speculators poured in money and enthusiasm, producing the dot-com bubble, which lasted from 1995 to the fall of 2001. The fallout from the bursting of the bubble, paradoxically, allowed the growth of a new set of approaches to the Internet, known as Web 2.0.

## Social Media

- The term “Web 2.0” describes patterns, practices, and programs for the Internet that are interactive, collaborative, and focused on empowering the user and harnessing “collective intelligence.” Part of this iteration of the Internet is social media, in which the user is not a passive absorber of content but a creator, sharer, shaper, and exchanger of content.
- From its origins in a Harvard dorm room in 2004, Zuckerberg’s enterprise grew to fantastic and still-expanding proportions. In 2011, Facebook had earned \$3.7 billion and reportedly became the first website to receive a trillion page views in one month.
- Like Edison, Zuckerberg was adept at integrating earlier inventions and developments in a new way. He has repeatedly described Facebook as a “utility,” echoing Diderot’s emphasis on usefulness and utility in the *Encyclopédie*.
- In the spring of 2012, Facebook’s initial public offering was the largest Internet stock market launch in history. At first, it did not do well, but the future remains to be seen. The key issue lies in





**Every month, some 30 billion pieces of information are posted on Facebook by users: photos, links, and messages.**

developing a revenue model out of the promise of knowing more about consumers so that advertising can be targeted as never before.

- The impact of Facebook and other social media on current events is already beyond question. In 2008, activists in Colombia used Facebook to rally massive demonstrations against the FARC guerrilla movement and its kidnapping of civilians. In 2009, the youthful Green Movement in Iran used Facebook and Twitter to protest against what they charged were fraudulent elections.
  - Some thinkers see this as part of a broader democratization that is being forced worldwide by the Internet. University of

Tennessee law professor Glenn Reynolds calls this the spread of “horizontal knowledge.”

- If earlier media focused on one authoritative voice speaking down to the many—vertically—this new technology encourages a more diffuse, participatory, horizontal communication. Decentralized and self-motivated individuals aggregate and challenge an earlier model of centralized authority.

### **New Media and Modernity**

- What can we say about the promise and perils of the new media as a part of our modernity? Is being connected to social media giving us richer social lives, or is the Internet inviting us to become more insular, locked into niche societies? Internet use also can lead to compulsive overuse or addiction, and some worry that social media foster exhibitionism and narcissism.
- Some commentators speak of an “Internet paradox,” noting that Internet usage correlates with reports of feeling lonely. Is the virtual world of “online” displacing what has been, until now, the norm of interaction offline?
- At an even more basic level of concern, some ask whether use of the Internet and digital technology is rewiring our brains. Numerous news reports speak of changes in reading habits, which had been declining even before the Internet.
- Many workers today complain of being overwhelmed by the flood of data, and it has been estimated that that flood will expand 40 times over by 2020. Optimists propose that we are already seeing human adaptation to such challenges.
- It’s also true that if the Internet empowers, it can empower the destructive and dangerous—criminals, terrorists, and small-scale thugs alike. Identity theft and deception online are everyday events. Governments warn of the dangers of cyberattacks and cyberwar.

- There is also danger from within. What does the new technology imply in terms of the power of governments to keep people under surveillance or to control their access to information?
  - Some critics speak of China's intensifying efforts to block access to certain websites as a "Great Firewall of China," but such efforts have also been called the "dictator's dilemma."
  - If a ruler shuts off access to the Internet and, thus, the world, the country suffers economically and may experience greater discontent and revolt.
- Throughout this course, we have asked how our turning points redefined authority. In the case of the Internet and digital media, it may be too early to say. But earlier formulas seem up for grabs.
  - Does the Westphalian system of territorial sovereignty that grew up around 1648 still apply in cyberspace as the Internet abolishes borders?
  - Are individuals empowered enough in this new world to escape another, later wave of technological change devoted to their regimentation and suppression?

### **The Turning Point of Turning Points**

- In many ways, the Internet and social media have supercharged key developments that we have looked at throughout these lectures: print culture, encyclopedic knowledge, global reach, and the elaboration of civil society.
  - At a far slower pace, Gutenberg's printing press and motion pictures worked to diffuse knowledge.
  - The impulse to encyclopedic, comprehensive, and useful knowledge was present in Diderot's *Encyclopédie* and the research of Leeuwenhoek and Alexander Fleming.
  - Global reach is a theme we have encountered from the beginning, in the voyages of Zheng He and Columbus, the trading travel of the East India companies, and powered flight.

- Globalization was present as imperialism in the Opium Wars and appeared as a global challenge to imperialism from the Russo-Japanese War. The perils of the atomic weapon and the great achievement of humans on the moon likewise were global in impact.
- We have repeatedly seen issues of how to build a civil society: in the 1648 Peace of Westphalia, the American Revolution, the French Revolution, the abolitionist movement, women's suffrage, and the fall of the Berlin Wall.
- Some thinkers have proposed that we are now at the turning point of turning points—the “singularity”—which they claim is rapidly approaching.
  - What is meant by the singularity is a transformation and progress in technology so profound that we cannot even begin to predict what will happen after this unique moment.
  - Will technology be embedded in human bodies with the result of creating something beyond the human? What follows on the manipulation of the human genome or artificial intelligence, and to what ends? Will the Internet and its proliferating connections grow into the kind of World Brain that H. G. Wells envisioned?
- We can perhaps conclude our course on the turning points of modern history on an optimistic note.
  - As all these turning points have appeared and left our world transformed, a constant has been the deeply creative response that humans have found to meet those changes or to push them further. That creative response to the unending challenge of the new is in part what being “modern” means to us today.
  - The ancient Greek philosopher Heraclitus uttered a thought that is as true today as it was 25 centuries ago: “The only thing that is constant is... change.” Thus, achieving creative synthesis of what is abiding, time-tested, and valuable with that which is

new, exciting, dynamic, and promising—that is how we will survive and thrive.

### Suggested Reading

Kirkpatrick, *The Facebook Effect*.

Mandiberg, *The Social Media Reader*.

Reynolds, *An Army of Davids*.

Shirky, *Here Comes Everybody*.

### Questions to Consider

1. What is the one greatest impact of the Internet on your own life?
2. Are social media and Internet usage drawing us closer together or isolating users?

## Timeline

1405 .....	Start of the voyages of Admiral Zheng He
1433 .....	End of the voyages of Admiral Zheng He
1453.....	Constantinople falls, end of the Eastern Roman Empire
1455.....	Gutenberg's invention of the printing press
1475.....	First book published in English
1492.....	Columbus encounters America
1494.....	Treaty of Tordesillas divides newly discovered lands between Spain and Portugal
1507.....	Waldseemüller map names "America"
1517.....	Martin Luther launches the Reformation
1543.....	Copernicus's heliocentric theory published
1570–1720.....	Dutch Golden Age
1600.....	Founding of English (later British) East India Company (EIC)

1602.....	Founding of Dutch East India Company (VOC)
1618.....	Thirty Years' War breaks out
1623.....	Amboyna Massacre
1631.....	Publishing of the Wicked Bible, with its crucial typo
1648.....	Treaty of Westphalia
1676.....	Antonie van Leeuwenhoek discovers bacteria
1751.....	Start of the publishing of the <i>Encyclopédie</i>
1756–1763.....	Seven Years' War between Britain and France
1757.....	Battle of Plassey in India; EIC wins control of Bengal
1759 .....	Founding of the Wedgwood company
1773.....	Boston Tea Party
1776.....	Paine's <i>Common Sense</i> published; American independence declared
1783.....	Treaty of Paris: Britain recognizes American independence
1787.....	American Constitution drafted
1789.....	American Constitution ratified

1789.....	Start of the French Revolution
1793–1794.....	Reign of Terror in the French Revolution
1799.....	Napoleon takes power in a coup
1807.....	Britain bans the slave trade
1831–1836.....	Darwin’s voyage on <i>HMS Beagle</i>
1838.....	Britain completes the abolition of slavery
1839.....	First Opium War
1856.....	Second Opium War
1857.....	Great Indian Mutiny
1859.....	Darwin’s <i>Origin of Species</i> published
1866–1946.....	Prolific lifetime of H. G. Wells
1868.....	Meiji Restoration in Japan
1869.....	Transcontinental railroad completed; Suez Canal opened
1874.....	Dissolution of the East India Company
1879.....	Edison perfects the light bulb
1893.....	Women’s votes first achieved in New Zealand
1896.....	Launching of movie performances



1903.....	Wright Brothers achieve first powered flight at Kitty Hawk
1904.....	Russo-Japanese War breaks out
1911.....	First use of the airplane in war over Libya
1914–1918.....	First World War
1920.....	Women’s votes achieved in the United States
1928.....	Dr. Alexander Fleming discovers penicillin
1939–1945.....	Second World War
1942.....	First controlled nuclear chain reaction in Chicago
1945.....	United States drops two atomic bombs on Japan
1946.....	First electronic general computer, ENIAC
1949.....	People’s Republic of China proclaimed
1956.....	Suez Crisis; key moment of decolonization
1957 .....	Soviet Sputnik satellite launched
1958–1962.....	Great Leap Forward in China

1961.....	Soviet cosmonaut Gagarin is the first human in space
1961.....	Berlin Wall erected
1966–1976.....	Mao’s Cultural Revolution
1969.....	Apollo <i>11</i> mission and U.S. astronauts walk on the moon
1969.....	ARPANET developed in the United States
1972.....	Nixon travels to China, marking China’s entry into the world balance
1972.....	Last manned moon mission to date
1978.....	Deng’s reform era launched in China
1989.....	Fall of the Berlin Wall; Tiananmen Square massacre
1991.....	Collapse of the Soviet Union; Cold War ends
1997.....	Hong Kong returned to China
2003.....	Sequencing of the human genome
2003.....	First Chinese astronaut sent into orbit
2004.....	Launch of Facebook at Harvard (originally called “thefacebook”)

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